ENGINEERING NEWS-RECORD

For the first time in 21 years water flows over Roosevelt Dam spillways in Arizona

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The Week In Engineering and Construction

ENGINEERING NEWS-RECORD • JUNE 12, 1941

Defense road bill covers many types of activity

Legislation being actively considered by Congress follows the PRA report instead of President's message. It includes flight strips near highways and aid to parking

Legislation introduced into Congress last week authorizing expenditures for defense roads is broadly phrased to cover all the types of activity recommended in the February report on defense highways prepared by the Public Roads Administration (*ENR*, Feb. 20, p. 289). It was introduced simultaneously by Rep. Cartwright and Sen. Hayden. A second bill, prepared at the request of the President, merely authorizes the $125,000,000 for defense roads suggested in his message of June 2. This bill, however, is receiving only perfunctory consideration, and, even from government officials, has obtained very tepid approval.

The Hayden-Cartwright bill sets no upper limit on the amounts that may be appropriated to carry out its provisions, leaving that for determination in a subsequent appropriation bill, but grants Congressional approval to several broad types of activity.

PRA to build access roads

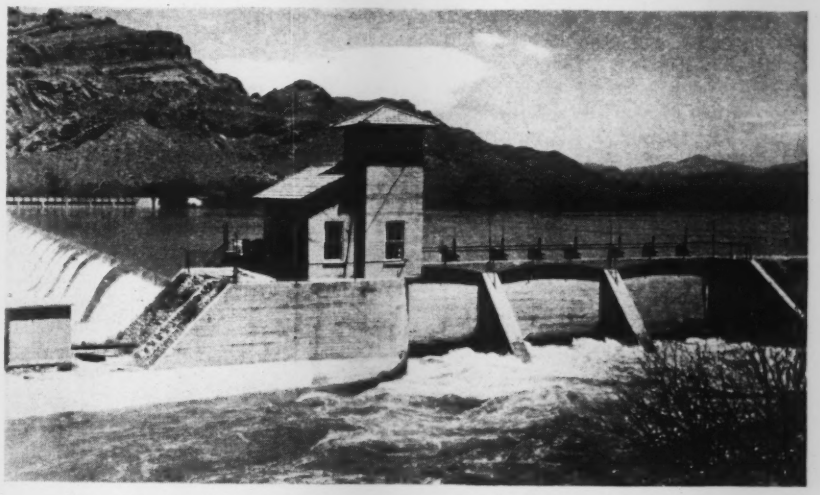
The bill provides for federally-financed construction by the PRA of access roads. It provides for federal aid, on the usual basis of allocation and 50-50 state matching, to correct deficiencies in the strategic network. Testifying on this point before a Congressional committee, Road Commissioner MacDonald said that the chief deficiency is not, as is commonly assumed, the sub-standard bridges. Rather, the commissioner said, it is the lack of adequate surface. He pointed out particularly that serious damage might be caused to the great mileage of bituminous paving by the hot exhausts from convoys of diesel-powered tanks, which would tend to melt the surface.

The latest and final revision of the strategic highway network, as of May 15, brings the total mileage to about 78,000. Distinctions between first, second, and third priority routes included in earlier maps (*ENR*, Feb. 20, p. 300) have been dropped, and all routes are of equal priority. The bill would permit inclusion on the federal-aid system of any roads included in the strategic network. Federal-aid funds could be used in purchase of right-of-way for road projects on the network, and in such cases provision is made for using the rapid federal method of land condemnation.

Any funds appropriated for defense roads could be used, under the act, for advance planning of future developments of the strategic network, including "bypasses around and extensions into and through . . . metropolitan areas." This section is specifically designed to permit planning of postwar projects.

Reimbursement of states for damages done to highways by military movements would be authorized.

Going beyond the PRA report, the Hayden-Cartwright bill would authorize 100 percent federal construction of "flight



Record water supply for Salt River Valley

For the first time in 21 years all five of the Salt River Basin dams of the Bureau of Reclamation in Arizona spilled last month. Only eight months before, on Sept. 18, a protracted dry spell had brought the total storage of the five dams—Roosevelt, Stewart Mt., Mormom Flats and Horse Mesa on the Salt River, and Bartlett on the Verde River—down to 22,000 acre-ft. The next day it began to rain, and, figuratively, has been raining ever since. Rainfall since September has been nearly two and a half times normal. Storage of the five dams now totals about 2,000,000 acre-ft. The above illustration shows water being diverted from the river into the main supply canal at Granite Reef Dam located below the high storage and power dams of the system.

In January, the Salt River at Phoenix was dry and had been for several years. The next month it began to flow and reached a stage, on the Weather Bureau gage, of 4.5 ft. By March 15 it had risen above the 7.0-ft. flood stage. In past years a stage as high as 15 ft. has been recorded, but since the flow of the river is now almost completely controlled, the comparison is rather meaningless. Some idea of the unprecedented nature of the situation is gained from the fact that Roosevelt Dam, built in 1911 as the key storage structure of the system, has never before held a full reservoir as pictured on the cover of this issue.

Groundwater levels in the basin, which had sunk very low, are beginning to show some recovery.

strips" along highways. These would be emergency landing fields with a single runway placed alongside straight stretches of highway running in the direction of the prevailing winds. They would be 200 to 800 ft. wide, 2,000 to 8,000 ft. long, might be sodded, soil-stabilized, or lightly paved. It is not intended to use the roadway itself as a runway because of the interference with vehicle traffic. The reason for putting them along roads is the economy to be achieved by building and maintaining the fields with equipment used on the roads.

The War Department would like to see about 400 of these flight strips built at an average cost of some $50,000 each. About 150 of these would be in New England and the Appalachian region where emergency fields are scarce. Another 100 would be in the Pacific Northwest.

Parking lot money

Most unexpected feature of the bill is provision for federal participation in the cost of parking lots. This is aimed at the congested conditions around munitions plants where workmen park their cars. It provides that where parking is permanently forbidden, by local ordinance, on urban sections of the strategic network, federal aid funds may be used, on the usual basis, for provision of off-street parking. Although phrased in the bill in terms of defense needs, this provision is seen by Commissioner MacDonald as perhaps initiating a major federal activity.

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Pennsylvania Turnpike extension bill passed

A bill providing for the extension of the Pennsylvania Turnpike from Irwin, Pa., its present western terminus, to the Ohio state line, has been passed by the Pennsylvania house of representatives, after previously being approved by the senate. The bill is now in the hands of Gov. Arthur H. James for his signature.

Following this announcement comes the information that toll receipts for the month of May set a new high record of $275,000 collected from 239,824 vehicles. Previous high mark was reported in October when the highway opened with receipts totaling $233,829.

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Senate gives approval to Niagara diversion

The U. S. Senate foreign relations committee has approved unanimously a new treaty with Canada, which permits additional diversion of water for power purposes from the Niagara River above the falls.

Under the agreement, which will be effective only until Oct. 1, 1942, the United States could divert an additional 5,000 cfs.; and Canada an additional 3,000 cfs.

In commenting upon the action of the foreign relations committee, Chairman George made it known that state department witnesses had testified that the additional diversion would not destroy the scenic beauty of Niagara Falls.

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Rails laid on railroad to Pit River Bridge

Final rails have been laid on the relocated Southern Pacific railroad route around the Shasta Dam reservoir site, with the exception of those across the uncompleted Pit River Bridge. Last week, A. Teichert & Son, who had the contract, completed the tracklaying work. Although all of the track has not yet been ballasted, steel can now be delivered over the track to the north end of the double-deck railroad and highway bridge being constructed over the Pit River.

Work was started on the south end of Pit River Bridge last December and steel work is now complete halfway between Pier 2 and 3. With steel delivery now possible to the north end of the bridge construction will be rapidly advanced. Final pour of concrete for Pier 4, the last foundation unit of the structure, is being placed this week by the Union Paving Co. This will complete the contract and leave only the erection of superstructure steel by the American Bridge Co. to be accomplished on the railroad relocation. The American Bridge Co. recently completed the Salt Creek bridge to the north and rails have been laid across it.

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More funds for TVA expansion requested

President Roosevelt has again sent to Congress a request for additional funds for TVA expansion, this time asking for $40,000,000 for the agency in addition to the $70,000,000 of TVA funds already appropriated. The money would provide for starting construction of two hydroelectric projects and two storage projects on the Hiwassee River and its tributaries. These projects are needed, said the President, to provide power for defense projects; they have been approved by the Office of Production Management.

To tame the flames at M.G.M. studio

For fire protection of the $20,000,000 M.G.M. movie studios, Culver City, Cal., the Bureau of Water Works and Supply of the city of Los Angeles recently installed a 12-in. fire line from the city's 36-in. high pressure main. The water in the main line is under 770-ft. head (334 lb. per sq.in.) and it was necessary to install a 12-in. regulator to reduce the pressure to the 125-lb. working head on the studio lot. Two 10-in. detector check valves were used in the installation as an added precaution.

In the illustration above, left to right: Thad M. Erwin, water sales agent, Bureau of Water Works and Supply; John Tobin, chief engineer for M.G.M. Studios, and C. A. Poling, assistant water sales agent; Jess Johnson, meter and service supervisor, and W. W. Hurlbut, engineer of waterworks, all of the Bureau of Water Works and Supply of the City of Los Angeles, inspect the installation.

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President asks early start on the St. Lawrence power and seaway work

Congress told that power is needed for defense industries and that seaway will permit building naval vessels in the Great Lakes

Early passage of legislation authorizing an immediate start on the St. Lawrence power and navigation project was asked of Congress by the President in a special message sent June 5. Legislation authorizing a start on the work was introduced into Congress a few days earlier (*ENR* June 5, p. 863) and hearings are to begin June 16. For details of the project see *ENR* May 22, p. 823.

The President told Congress that the project was needed to provide more power for defense industries, to permit transfer of a large part of the long-term naval construction to Great Lakes shipyards to relieve the coast shipyards, to eliminate transportation bottlenecks, and to reduce by "more than 1,000 miles the stretch of dangerous open water which must be traveled by supplies to Great Britain and strategic North Atlantic bases."

Early use planned

The President said that he had been advised that the waterway could be completed in four years and that under emergency pressure it can be completed in less time; adding that world events give no assurance that this country's danger will be over before the project can be completed. Subsequently, at a press conference, the President revealed that engineers of the two governments now believe that emergency passage of seagoing ships lightened for the passage may be possible within two years after the power and navigation project is started. He gave no details, but it is understood that the plan does not as yet involve any radical change in the working program, though some such move as installation of temporary locks is not ruled out. Rather, the prediction simply represents the best progress that might be made if climatic conditions are favorable, if work is pushed to the limit and priorities are granted on needed materials and equipment.

Work at Niagara

Regardless of the fate of the St. Lawrence project, an immediate start is planned on construction of remedial works above Niagara Falls. This became known last week with publication of the correspondence between this government and Canada on the temporary diversion of additional water at Niagara. Included in the non-controversial temporary agreement—which is independent of the St. Lawrence project—is provision for "initiating forthwith the construction of works designed to distribute the flow of water over the falls in such a manner as to preserve their scenic beauty." Pending completion of studies now under way it is not known exactly what work will be done, but it is expected to follow the general lines laid out in past studies of the major project. This would involve construction of submerged weirs near the crest of the falls to check the concentration of flow in the Horseshoe Falls and distribute that water over a wider area.

. . .

Charles Whiting Baker former editor, dies

Charles Whiting Baker, editor of *Engineering News* and *Engineering News-Record* from 1894 to 1918, died at his home in Montclair, N. J., June 5, following a long illness.

C. W. Baker was born in Johnson, Vt., in 1865 and graduated from the University of Vermont in 1886. As a result of writing contributed to *Engineering News* while still in college, he was offered a position on the editorial staff upon graduation, but he had already accepted a position with the Baldwin Locomotive Works in Philadelphia. Six months later when the offer was repeated he accepted. In 1895, upon the death of A. M. Wellington, he was made editor. Later he became a director and secretary of the Engineering News Publishing Co., serving in that capacity until 1909. When *Engineering News* and *Engineering Record* were consolidated early in 1917, Mr. Baker was named editor of *Engineering News-Record*. He continued in that capacity for only a short period, relinquishing it to E. J. Mehren in order to devote his time to banking and economic matters in which he had become deeply interested. Mr. Baker continued for a few years as consulting editor, writing on transportation and related subjects. The remainder of his active life was devoted to economic studies and investment banking.

Mr. Baker was the author of "Monopolies and The People" (1889), and "Pathways back to Prosperity" (1932). He was a member of the American Society of Mechanical Engineers, serving as vice president 1909-1911, and was a commissioner of the Palisades Interstate Park for a number of years. In the latter capacity he acted as chairman of the committee in charge of constructing the Henry Hudson Drive.

Flame-cleaning 5 acres of steel prior to painting

Welders are using oxyacetylene torches that deliver a flat flame 6 in. wide to remove rust and scale preparatory to painting the five acres of steel surface in the drum gates on the Grand Coulee Dam spillway crest. One of these torches, the Bureau of Reclamation reports, can clean some 600 sq. ft. per hour. The heat of the flame, which averages 5,300 deg. F., is said to raise the outer layer of the scale to high temperature instanteously, leaving the bottom layers at relatively low temperature and in a brittle state which causes them to pop off the base metal. Each of the gates, of which there are eleven, is 28 ft. high and 135 ft. long. The work of assembling them on the crest of the spillway has been under way for a year and is now well advanced.

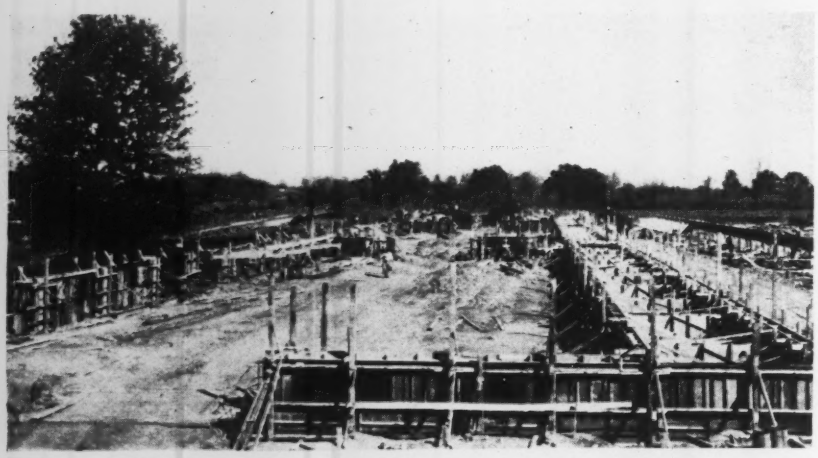
A 606 x 80-ft. warehouse every two weeks

After seven months of work, the George H. Rommel Co., Inc., Louisville, Ky., recently completed a $1,300,000 contract requiring construction of 14 warehouses, each 605 ft. 8 in. long and 79 ft. 6 in. wide, for the War Department at the Jeffersonville (Ind.) Quartermaster Depot. Working five days a week and using an average crew of 350 men, the contractor completed one building every two weeks. Each job being done by well-organized crews travelling from building to buiding accounted for the rapid construction program carried out.

Materials required included: 22,000 cu. yd. of concrete; 2,900,000 bricks; 17,000 cu. yd. crushed rock; 2,300 tons structural steel; 835 tons of reinforcing steel; and 1,700,000 bd. ft. of lumber. Also required was 20,000 cu. yd. of foundation excavation, 17,000 cu. yd. of rock fill, and 100,000 cu. yd. of earth fill.

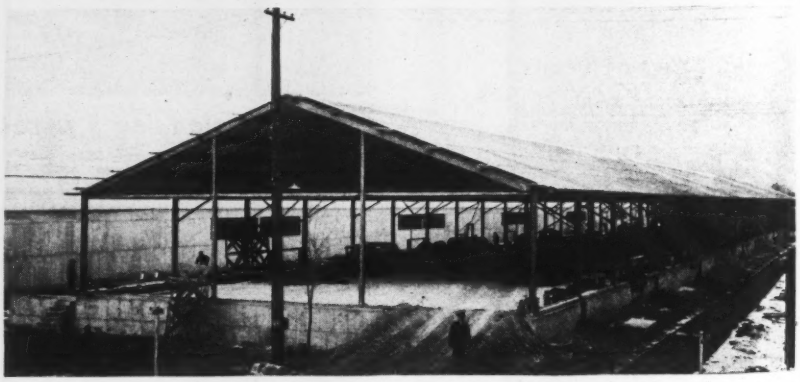
All warehouses are of the same design, one-story steel-frame construction with a 12-ft. wide loading platform extending the full length of the structure at one side. Reinforced-concrete foundation walls are built up sufficiently to place the floors one foot above the 1937-flood level in the Ohio River.

Exterior walls are 12 in. thick and of solid brick for the first 4 ft. The remaining height consists of a 4-in. brick facing with an 8-in. hollow tile back up. The roof is of steel trusses supporting a 2-in. wood planking covered by corrugated cement asbestos roofing. A 5-in. concrete slab with one layer of reinforcing is used for the floors, which are placed on a 6-in.



TO GET FLOORS one foot above 1937-flood level exterior foundation walls are built up several feet with 30,000 sq. ft. of forms having steel frames and plywood facing. Double wall at right is to provide a 12-ft. loading platform which will be paralleled by a railroad spur.

WITH FOUNDATION WALLS complete, trucks supply earth fill for building up inclosed area in 6-in. layers, which are compacted with a 7-ton sheepsfoot roller. Crushed stone is used for last 6 in., which is also compacted with a roller.



BRICKS are deposited for exterior walls by trucks using ramp in foreground as erection of steel frame and construction of corrugated cement asbestos roofing over 2-in. wood planking near completion. Crushed stone insulation course over which reinforced-concrete floor slab will be placed may be seen.

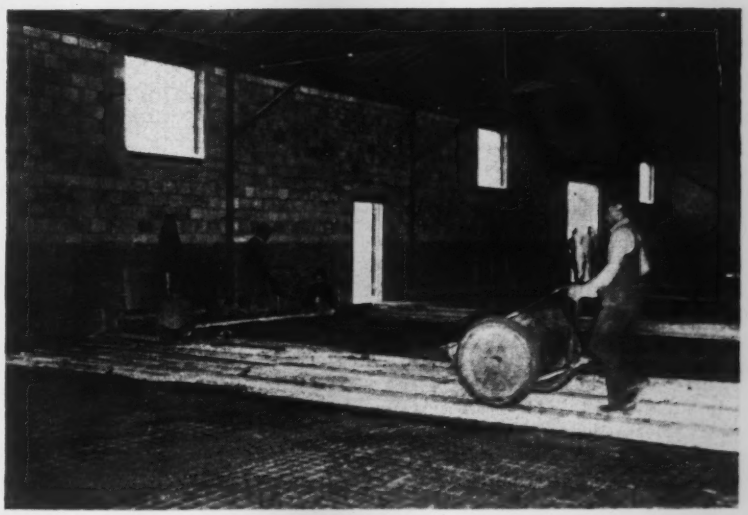
...eks with 350 men

layer of crushed rock over the earth fill.

Harry Rommel was superintendent for the general contractor and Lt.-Col. A. C. Jensen, constructing quartermaster, represented the Army. Warehouses were designed by the Office of The Quartermaster General in Washington, D. C.

TYPE OF WALL construction is revealed by view at right, which also shows spacing of doors, windows and louvers on side walls.

TRANSIT-MIX concrete for floors is transferred from truck (not shown) to a 3-yd. hopper dumping into two-wheel buggies. A 1:6 mix is being used.



FLOORS are constructed in alternate 12-ft. strips running crosswise of building. Between concrete and crushed-stone base a layer of tar paper is used to prevent concrete from filling voids of insulation course. Note spacing of windows, doors, and louvers in wall, and how the columns for the roof trusses are located inside the walls.

Oil pipelines to replace tankers may cost $160,000,000

Biggest of the proposed projects is a 1,500 mile double line from Texas to Bayonne, N. J., a 24-in. line for crude oil paralleled by a 20-in. gasoline line

Passage by Congress of the Cole bill to facilitate pipeline construction will probably release projects costing in the neighborhood of $160,000,000. The bill has already passed the House and early completion of Congressional action is expected since the railroads, the chief opponents of the measure, have withdrawn their opposition.

The bill has two parts. It would grant to private pipeline companies the right of eminent domain to obtain rights of way, provided that their projects are certified by the President as important to the national defense. The rapid federal mode of condemnation would be used, by which the land is taken at once and the price settled later. In Georgia, and probably several other states, pipeline companies do not now have the power of condemnation, and this has held up several projects. The Georgia legislature recently refused to grant such powers. Several projects have been held up because of this situation. The bill would also authorize federal loans to pipeline companies.

The second part of the bill provides that if private capital is unwilling to undertake pipeline projects, the federal government may initiate construction.

Behind the bill is the shortage of oil transport to the East Coast. This area is normally served with oil and gasoline brought from the Gulf by some 260 tankers. Fifty of these have been diverted to British service, and it is generally believed that another fifty will soon be taken. Result is an impending shortage in the East. It is intended to replace these tankers with pipeline transportation.

Biggest of the proposed projects is a 1,500-mile double line from the Texas oilfields to Bayonne, N. J. This would consist of a 24-in. line to carry crude oil paralleled by a 20-in. gasoline line. Cost of the two pipes would total about $140,000,000, and the job would take 12-15 months. This project was proposed to Oil Coordinator Ickes in a report submitted by the American Petroleum Institute. Studies are now underway as to the possibility of its private construction, but it is generally assumed it would have to be handled as a federal project.

In addition to this big project, at least three private lines are ready to go. Biggest is the 1,200-mile Plantation Pipeline, which would run from Baton Rouge, La., to Greensboro, N. C., with a possible extension to Norfolk, Va. This pipe, ranging in size from 11-in. to 6-in., would cost about $20,000,000. Work is expected to start as soon as the Cole Bill passes.

Also waiting passage of the Cole Bill is completion of the 448-mile Southeastern Pipeline, running north from Port St. Joe, Fla., to Chattanooga, Tenn. This has been built except for about 30 miles involving crossings of railroads and highways.

Also expected is private construction of an $8,000,000 pipeline from Portland, Maine, to Montreal.

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Factories for defense— a year's accomplishment

Just a year ago, in May 28, 1940, President Roosevelt took the first step toward arming the nation for any eventuality by appointing the National Defense Advisory Commission, thereby setting into motion the machinery for building an armament industry. Up to April 1, 1941, or in ten months, more than 1,600 plants have been constructed or enlarged at a cost of $2,839,503,000; some are complete and in operation, others are nearing completion.

Figures compiled by the Office of Emergency Management show that the government is paying for three-fourths of the new plants needed for defense, while private industry is financing the remainder. Almost $2,000,000,000 is being expended by the government to finance 331 plants, of which 99 will be government owned when completed. Fifty-four of these, costing $625,000,000, will serve the War Department, forty-five, costing $400,000,000, the Navy.

Ammunition will be produced in 42 of the plants under construction at a cost of $554,000,000. Small-arms ammunition manufacturing, which was negligible before the defense program was launched, will be undertaken at four plants costing $90,000,000.

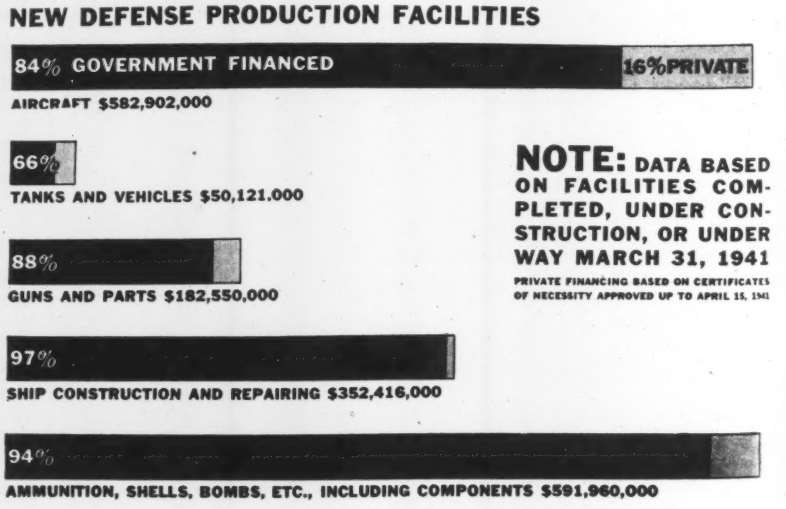
Aircraft parts will be turned out by 115 plants with an investment of $487,000,000. This is almost six times what the aircraft industry spent in 1940 expanding its own facilities. The amount being expended upon airplane engine production alone this year is almost twice as much as the aircraft industry spent on all production expansion in 1940.

The government is spending $161,000,000 to build 34 plants for the manufacture of guns; seven will turn out machine guns, of which there was no substantial production a year ago. For the manufacture of artillery, $106,000,000 is being invested in 25 plants. For machine tools, $16,000,000 is being spent on 19 plants.

New production facilities in 40 shipbuilding plants will cost $343,000,000 when completed. A dozen armor plate and heavy forging plants are being built at a cost of $106,000,000.

Private capital, as represented by 1,225 certificates of necessity, accounts for $733,000,000. This investment is largely devoted to making improvements in existing plants. Among the new industrial facilities privately financed, plants producing nonferrous metals and their products account for $158,000,000. Plants to produce smelt, and refine aluminum account for $78,000,000; iron and steel industry expansion, $152,000,000, while privately financed aircraft plants are costing $96,000,000, and ammunition industries $38,000,000.

The accompanying chart shows how expenditures for five major types of plants are divided between government and private industry.


NEW DEFENSE PRODUCTION FACILITIES
84% GOVERNMENT FINANCED
16% PRIVATE
AIRCRAFT $582,902,000
66%
TANKS AND VEHICLES $50,121,000
88%
GUNS AND PARTS $182,550,000
97%
SHIP CONSTRUCTION AND REPAIRING $352,416,000
94%
AMMUNITION, SHELLS, BOMBS, ETC., INCLUDING COMPONENTS $591,960,000
NOTE: DATA BASED ON FACILITIES COMPLETED, UNDER CONSTRUCTION, OR UNDER WAY MARCH 31, 1941
PRIVATE FINANCING BASED ON CERTIFICATES OF NECESSITY APPROVED UP TO APRIL 15, 1941

Vast electric utilities plant expansion planned for the years 1941-1942

In the 1941 budget of private utilities, $242,300,000 is allocated to steam stations and $8,400,000 to hydro. Distribution systems is put at $296,200,000, an all-time high.

Projected expansion of public and private electric power plants by more than 7½ million kilowatts in the years 1941 and 1942 was reported to the annual meeting of the Edison Electric Institute held in Buffalo, June 2-5, by C. W. Kellogg, president of the institute. Also on the books, Mr. Kellogg said, are 1,046,000 kw. for 1943 and 668,000 kw. for 1944, figures which may be expected to mount rapidly as programs for those years are more fully developed. A total of 4,150,000 kw. is expected to be put into service in 1941 and 3,430,000 kw. in 1942. Of this, the privately owned electric utilities will add 2,103,000 kw. in 1941 and 2,459,000 in 1942, chiefly in new steam stations. The remainder includes the large publicly owned hydroelectric power projects and steam stations for municipalities and industrial companies.

Figures for the construction budget of the electric light and power industry made public at the meeting set the 1941 figure, exclusive of publicly financed undertakings, at $731,400,000 for 1941, as compared with $620,000,000 in 1940. In the 1941 budget, $242,300,000 is allocated to steam stations and $8,400,000 to hydro. Expenditures for distribution systems is put at $296,200,000, which is an all-time high. About 20 percent of the cost of steam stations is represented by buildings and other structures as distinguished from the electrical and mechanical equipment. On hydro work the relation is about reversed, but varies widely.

Adequacy of the supply

On the controversial question of the adequacy of the nation's power supply, Mr. Kellogg said that to him the important consideration, as in the case of our recognized shortage of planes, tanks, and guns, is not whether an actual shortage exists at the moment, but whether adequate plans have been made to meet estimated needs in the shortest feasible time. On this, he said that the 7½ million kilowatts going into service during 1941 and 1942 appear to be the true answer rather than any comparison of present rated capacity with current demands. Also, Mr. Kellogg pointed out that over the past years the electric utilities have built up an excess of 30 percent over annual peak loads to meet the insufficiency of stream flow at hydro plants and to meet maintenance requirements at the steam plants. In addition to this, is a generating margin averaging from 10 to 15 percent that can be drawn on as needed. Another unused reserve, in the case of the steam generating stations is the ability in emergency to exceed rated capacities by a margin of 10 to 15 percent during a peak of moderate duration, and in the case of hydro stations there is a still larger effective capacity above the rated capacity of the units. A still further resource, Mr. Kellogg said, that has so far hardly been tapped in the present emergency is the huge increase in energy that would be available from continuous operation throughout the 24 hours of the day for 7 days a week. The electric industry now operates on that schedule. If our defense plants were put on a similar schedule, that alone would add 15 to 20 percent to the annual power output of all electric generating stations and would increase industrial production by nearly 20 percent, according to estimates made by Mr. Kellogg.

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Highway construction in Maryland at all-time high

The Maryland State Road Commission now has under construction 47 projects costing a total of $5,262,839, which is an all-time high peak for the state, as announced by chairman Ezra B. Whitman of the road commission.

In addition to the work already under construction, last week the commission opened bids on $500,000 worth of projects. All projects required to be under contract by June 30 in order to qualify for federal-aid allotments are ready for bids. The 47 projects now under construction do not include many miles of access roads which the state is building to serve military purposes.

Photo, Corwin Hansen

City planning is aided by accurate scale model

A model of the city of San Francisco on a scale of 100 ft. to the inch (occupying a 47x51-ft. area), has been of great advantage in planning changes and studying the city's traffic problems. The model, in which each building is built to scale, cost $150,000 and required several years for construction. In the accompanying picture Thomas A. Brooks, San Francisco's chief administrative officer, holds in his hand an addition to the map representing a large office building now nearing completion; an assistant points out the place where it is to go. Each building can be removed and changes are made to keep the model up to date. The buildings are of such substantial construction that it is possible to walk about on the model by treading carefully on the portions where the buildings are not too high.

MEN at WORK

Four gentlemen shown at right wear fine clothes and do all the worrying about the construction of the big cantonment at Fort Leonard Wood, near Rolla, Mo. They are, left to right, F. W. PARROTT, E. F. Lytle Co.; W. A. KLINGER, W. A. Klinger, Inc.; HUBERT EVERIST, Western Contracting Corp., all of Sioux City, Iowa, and ARTHUR H. NEUMANN, Arthur H. Neumann & Bros. Inc., Des Moines, Iowa, all part of the combined firm of Klinger-Neumann-Western-Lytle Company, contractors on the camp. The three fellows at the top wear the work clothes and really do all the work. They are E. G. WERNENTIN (left), chief engineer, ROBERT F. McCUNE (center), general superintendent and LEE HUNTLEY, project manager, for the same combination of contractors.

J. W. WALLACE (left above), superintendent for J. I. Crow Const. Co., and V. A. THURSTON, superintendent for Willcox Construction Co., have good support from some steel forms devised for use on Bellvue Housing Development at Hartford.

The new 34-E single-drum paver in the background is the topic of interest of E. R. BANKS (left below), superintendent for the Harlem Contracting Co. and E. J. GOES of the Koehring Co. of Milwaukee. The paver is on the Hutchinson River Parkway extension in the Bronx, New York City, laying concrete for an express approach to the Bronx-Whitestone Bridge.

DON HULL McCREERY (left below), senior office engineer and A. F. BARNARD, resident partner for Leeds, Barnard, Hill & Jewett, Los Angeles, holders of the architects-engineers contract at Camp San Luis Obispo, Calif. This job, which was 83% complete on April 22, is a 20,000 "permanent tent camp" that housed the first draftee contingent March 8, on schedule, despite 3½ mo. of rain that came after work started. Extended completion date is June 1.

Fee contracts on Army construction upheld in House vote

War Department appropriation bill carrying $240,000,000 for new construction passes but amendment to forbid negotiated fee contracts is defeated.

Although the House this week passed the War Department appropriation bill by the narrow margin of four votes it turned down a provision to eliminate negotiated fee contracts on Army construction offered by Representative Engel as an amendment. The provision was opposed in letters written by General Somervell, construction chief of the Quartermaster Corps, and by Undersecretary of War Patterson, who stated it would seriously handicap the Army program and delay it by as much as six months.

Although it is still intended to use competitive lump sum contracts where possible, such contracts will probably be out of the question except for cantonment jobs now being designed at leisure with a special $15,000,000 appropriation. Basic reason for this appears to be inability to obtain bids on large jobs. A check was made in connection with the big general hospital at Springfield, Mo. A tight completion date was set and high liquidated damages established. As a result only one contractor in the state was willing to bid on the job. It is felt also that under current conditions any bids obtained on jobs running up to $20,000,000 or so would contain such high safety factors as to push the cost beyond that probable under fee contract conditions. Moreover, the current acceleration of armament preparation appears likely again to push the program ahead of the ability to prepare design, thus necessitating fee contracts.

The procedure in negotiated fee contracts, General Somervell feels, has been put on a "better systematized basis." It is still being handled through the Quartermaster Advisory Board, now headed by General W. D. Connor who replaced General Spaulding when he resigned because of a bad heart condition. General Connor, who has been in retirement, is a former superintendent of West Point and also was chief of staff of the A.E.F. Other members of the board are now: Alonzo Hammond, Forest Harvey, Richard Tutlow III and S. J. C. Dresser.

In another move to improve the fee system, means are being sought to impose some penalty on fee contractors for mistakes or delays that are their fault. The same general policies of geographical distribution are being followed, but General Somervell "does not regard this as entirely a contractor's relief program" and will not hesitate to assign second jobs to firms which have done good work.

Money for new construction

Of the $240,000,000 construction money in the Army appropriation, $51,000,000 is for continuation of work at the Atlantic bases. The Army has previously received $92,325,000 for this work and the new appropriation will complete the work originally let. However, plans were stepped up last month and another $45,000,000 may be spent.

A total of $67,923,000 is provided for continuation of the warehouse construction program at Army depots. All of this will be built by the Quartermaster Corps; about $46,000,000 will be for storage of Quartermaster property, $1,640,000 for engineers storage, $4,500,000 for medical, $11,400,000 for ordnance, and $3,817,000 for signal corps.

A $40,000,000 program of roads, walks and parking areas within cantonments is provided for in the bill.

For work at air fields, $45,000,000 is provided. This is widely scattered and covers only one large new project, a $6,000,000 air depot at Puerto Rico.

Fee contracts for equipment under rental arrangement will probably be accelerated by a $5,500,000 appropriation in the bill. The Army practice is to recapture contractor's equipment when rental payments have built up a 50 percent equity in it. It was revealed at hearings on the bill that the Quartermaster Corps is now also recapturing equipment for the use of other departments of the government and other branches of the service, notably the military engineers. The Federal Works Agency is getting "a sealed agreement" on this equipment—presumably for the WPA—on an arrangement by which FWA funds meet the differences between the Army equity in the equipment and its depreciated value.

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Southeast attempting to save electric power

To meet the present electric power shortage in the Southeast (*ENR* May 29, 1941, p. 848) many cities in that area are restricting unnecessary use of electric current. At Charleston, S. C., show windows are not lighted at night, theaters are almost blacked out except for small lights in the lobbies, and hotels are asking for special care in the use of lights. The Harza Engineering Co., engineers for the Santee-Cooper project, have reduced by about 50 percent the use of power for airconditioning in their Charleston offices. These attempts to save power are typical of those of many other municipalities.

Many power companies June 16 will start rationing power for non-defense industries, according to newspaper reports. These include the many different Commonwealth & Southern subsidiaries. The Tennessee Valley Authority is also to join the move.

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Court grants rehearing on Tacoma Bridge suit

The supreme court of Washington State, last week, granted the Washington State Toll Bridge Authority a rehearing on an April 12 decision, in which the court ruled the authority had to pay $619,915 with interest to three contractors who built the collapsed Tacoma Narrows suspension bridge.

Chief Justice John S. Robinson set June 20 for reargument of the case before all nine justices.

In its rehearing petition, the bridge authority contended it was an agency of the state and was not liable for interest on its obligation. If the court rules that the Washington State Toll Bridge Authority is a state agency, such a ruling would aid in having the authority's damage suit against insurance companies holding policies on the collapsed bridge transferred from the federal court to a state court.

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Wind tests recommended for Golden Gate Bridge

Tests made recently on a model of the Golden Gate Bridge in the wind tunnel at Stanford University were the subject of a recent report to directors of the Golden Gate and Bridge Highway District by Russell G. Cone, the district's former engineer. Mr. Cone recommends further studies because he believes the recent model tests at Stanford are not conclusive. Aerodynamic forces were not taken into account at the time the Golden Gate Bridge was designed and it is advisable, he suggests, to make a thorough investigation in the light of the new knowledge gained as a result of the Tacoma Narrows Bridge collapse. Prof. E. G. Reid, who made the wind tunnel tests, expressed the opinion that they did not indicate any dangerous vibrations characteristic in the bridge. The Golden Gate Bridge withstood a wind velocity of 72 mph. some years ago with only relatively slight deflection (see *Engineering News-Record* Feb. 24, 1938, p. 311 and Mar. 31, 1938, p. 459).

MEN AND JOBS

PAUL E. LANGDON, THOMAS M. NILES, KENNETH V. HILL and SAMUEL M. CLARKE have been taken into partnership in the firm of Greeley & Hansen, consulting engineers of Chicago.

THOMAS M. BASTERASH, city engineer of Superior, Wis., has resigned from the office which he has held since 1935.

WILLIAM H. DAY has been appointed city engineer of Rockford, Ill., to succeed Harry Mundhenke.

GEORGE PARKMAN has been appointed director of building construction and maintenance of the Westinghouse Electric & Mfg. Co., East Pittsburgh, Pa. Mr. Parkman, who has been acting head of the construction department for several months, with his headquarters at East Pittsburgh, is now in charge of eleven new building projects for Westinghouse, including the new fluorescent lamp plant at Fairmont, W. Va. Before he joined Westinghouse in 1938 as a construction engineer, Mr. Parkman had a wide experience in all phases of the construction field. He attended Lafayette College where he received the degree of bachelor of science in civil engineering in 1928. In 1933 the same school awarded him the degree of civil engineering.

GEORGE PARKMAN

WALTER C. CONROY has been appointed superintendent of the Belmont (Mass.) water department, succeeding EDWARD J. LOONEY, recently retired. EDWARD P. LOONEY was appointed field superintendent.

FRED H. REICHERT has been appointed county engineer of Bexar County, Texas, with headquarters at San Antonio, succeeding Russell White, who has been called into active military duty.

IAN MORGAN, formerly estimating engineer for Austin Bridge Co., has been appointed county engineer of Travis County, Tex., headquartering at Austin.

ANDREW C. MCCORD has resigned as field engineer for the Brown-Bellows-Columbia Co. on the construction of the naval air station at Corpus Christi, Tex. Mr. McCord has returned to his home at Oklahoma City, where he will be employed by the city as supervising engineer on the construction of the new Bluff Creek reservoir project.

DONALD GORDON has resigned as park superintendent of Oklahoma City to become city engineer-manager of Wichita, Kan.

OSCAR T. MASON, Mobile, Ala., has been named assistant WPA administrator in charge of twelve southern counties, with headquarters in Mobile. He succeeds R. W. JOHNSON, who resigned.

WALTER J. BUCHELE, a graduate of Iowa State College in electrical and architectural engineering, has been chosen city engineer by the city council of Iowa City, succeeding FRED E. GARTZKE, acting engineer since the expiration of his term a month ago.

FRANK BRASIE has been transferred to Dickinson, N. D., where he will be chief maintenance engineer for the North Dakota highway department. He has been succeeded as divisional maintenance engineer at Valley City, N. D., by DAN E. SMITH.

WALTER MULLIGAN, of Omaha, has been named state supervisor of construction for the NYA in South Dakota.

GEORGE KAPETZ, county surveyor at Manitowoc, Wis., has been appointed resident inspector during the construction of 400 defense workers' houses in Manitowoc by the Federal Housing Authority.

J. M. STRONG of Cheyenne, Wyo., has resigned as an engineering draftsman for the Wyoming state highway department to accept a position as a structural engineering draftsman in the Mare Island navy yard in California.

WILLIAM R. WALLIS, a native of Laramie, Wyo., and a graduate of the University of Wyoming in 1930, has accepted a civil service appointment as associate structural designer with the army engineers at Honolulu. From 1930 to 1937 Mr. Wallis was a bridge designing engineer with the Wyoming highway department. For the last year he has been affiliated with the Allied Engineers, Inc., of Long Beach, Calif.

EUGENE H. PAULUS, recently returned from Camp Blanding, Fla., where he was associated with Solomon-Keis, engineers and architects, on defense cantonment work, has been appointed senior project engineer and construction adviser for USHA on the new Clinton-Peabody Terrace housing project at St. Louis, Mo.

CHARLES M. COFF, formerly engineer examiner with PWA, has recently joined the engineering staff of U. S. Engineers at Fort Crook, Neb., with duties as office engineer in connection with the construction of a bombing assembly and manufacturing plant.

E. J. O'HARA, former city engineer of Pittsburg, Calif., has become city engineer of San Gabriel, Calif., succeeding the late C. N. Wright.

MAX H. DOYNE, consulting engineer, St. Louis, Mo., has been appointed by Mayor Becker to succeed EDWARD E. WALL as director of public utilities of the city of St. Louis. The new director, a graduate of Cornell University and Cooper Union Institute, came to St. Louis shortly after his graduation in 1915 and became associated with C. E. Smith & Co. He headed the firm until accepting this appointment.

LIEUT. WADE CRAVENS, a graduate of Texas A. & M., and for the past ten years an engineer with the Texas highway department, has been called to active army duty in Virginia. His headquarters have been in Paris, Tex.

B. J. HOVDE has been appointed director of the Pittsburgh office of the Federal Works Agency defense housing division. Dr. Hovde will continue in his position as administrator of the Pittsburgh Housing Authority, dividing his time between the local housing authority and the Pittsburgh office of the FWA defense housing division; $22,500,000 has been allocated for the construction of approximately 5,000 low-rent housing for industrial workers in this area.

F. C. SCHLEMMER has left the Tennessee Valley Authority to join the forces of the Arundel Corp. of Baltimore on construction of Naval Air Base Facilities near San Juan, Puerto Rico. Mr. Schlemmer has been with the TVA since August of 1933 as assistant superintendent, then superintendent at Norris Dam; construction superintendent at Chickamauga Dam; and as construction superintendent, then project manager in general charge of the Watts Bar Dam and steam plant. Prior to joining TVA, Schlemmer was with the J. G. White Engineering Corp., on heavy engineering and utility construction.

F. C. SCHLEMMER

WALTER M. BENSON has resigned his position as junior engineer on the construction of the U. S. Naval Air Station at Corpus Christi, Tex., to become associated in business with his father at Oklahoma City. Benson & Montin has numerous contracts for the construction of natural gas pipelines in Louisiana, Arkansas, and Oklahoma. Mr. Benson will be employed on those projects.

OPM orders expansion in steel capacity

More than a billion dollars to be spent in raising plant output by 10,000,000 tons annually

The steel production capacity of this country must be increased by 10,000,000 tons a year, the Office of Production Management has decided. The need for expansion of steel capacity has been a subject of controversy since the defense program got underway, the steel companies in general having held that no expansion was needed and being supported in this view by the first Gano Dunn report. The New Deal group in the defense organization, on the other hand, who have argued for expansion, had their views reinforced by the conclusion in the second Dunn report that a steel shortage is imminent. Dunn's report itself took a noncommittal attitude on expansion, pointing out that expansion itself would absorb large quantities of steel.

Present intention is to achieve the added capacity by expanding facilities of existing plants. A tentative allocation of the new capacity would assign 3,200,000 tons to U.S. Steel, 1,800,000 to Bethlehem, 1,400,000 to Republic, and 3,600,000 split between National Steel, Jones & Laughlin, and American Rolling Mill.

The $1,000,000,000 or more cost is to be met largely through RFC, either by loans or by government ownership under RFC's Defense Plant Corporation.

According to the Dunn report, this expansion of steel capacity will take two years so that it will not have much effect on the steel shortage which, according to the Dunn report, will occur this year. The question of allocation of steel as between various non-defense users is therefore of great importance. First move in this direction was taken this week when price administrator Henderson ordered that contracts for steel to go into railroad car building be put ahead of all other civilian non-governmental orders.

Except for the right of appeal established by the Priorities Division (ENR, June 5, p. 50), no formal machinery to meet the problem of non-defense allocation has yet been set up. A statement of the broad policies which should govern it, however, was prepared last week by the Office of Price Administration and Civilian Supply. Factors to be taken into account, according to OPACS, are: provision of steel for uses essential to public welfare; degree of hardship to labor or business resulting from non-delivery; past consumption rates; equity in the division of supplies; availability of substitutes; policy of non-delivery to users who "discriminate against defense orders."

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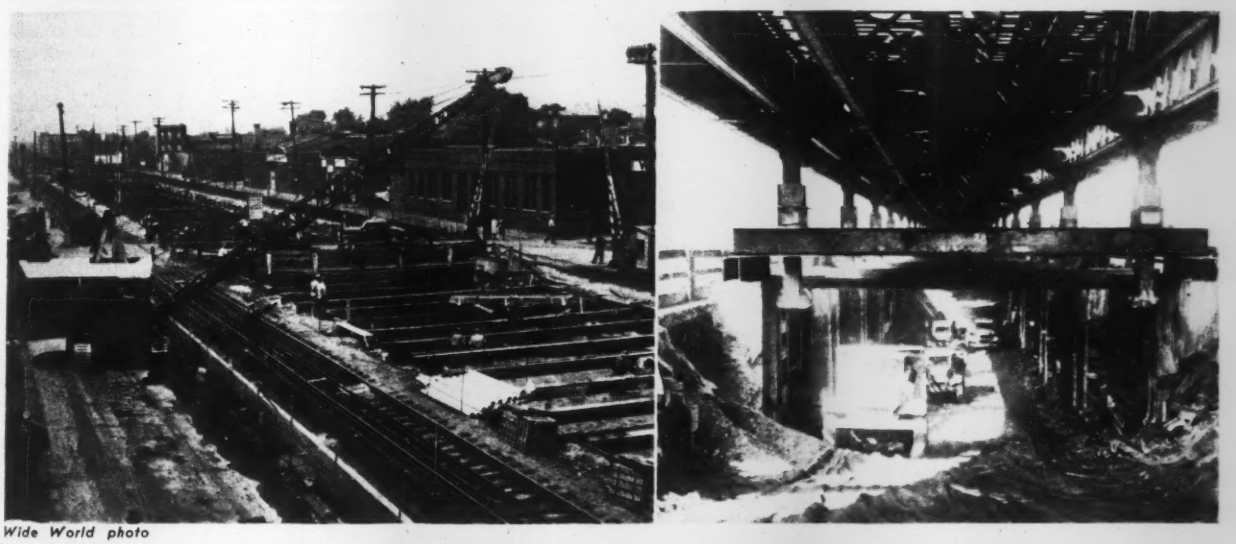
TVA favored by labor on Kentucky power project

A recent announcement that army engineers would construct the Wolf Creek power dam on the Cumberland River near Jamestown and Somerset, Ky., instead of TVA, has caused the Tennessee Federation of Labor, meeting at Knoxville, Tenn. on June 3, to pass a resolution asking that the Cumberland River basin be placed under the jurisdiction of TVA.

The resolution was submitted by the Building Trades Council of Knoxville.



Wide World photo

Five miles of Long Island R.R. put underground

At a total cost of $23,800,000 nearly five miles of the Long Island R.R. along Atlantic Ave. in New York City is being put underground as a double-track subway. Work extends from Eastern Parkway in the borough of Brooklyn to 125th St. in the borough of Queens. In the past about 1⅛ mi. existed as elevated line and the remainder as surface line.

When the work was begun in 1939, Atlantic Ave. for the most part consisted of a 35-ft. roadway on either side of the 50-ft. railroad right-of-way. When the project is completed by the summer of 1942, grade crossings eliminated will total 20 and Atlantic Ave. will be a 120-ft. boulevard over the subway with the two separated by a 5-ft. thickness of earth.

Construction is a regular subway box with a reinforced-concrete invert about 30 ft. below ground level, reinforced-concrete walls, and a ceiling of steel I-beams and concrete jack arches. Tracks are to be separated by a single line of columns, which will support a continuous collision wall about 5-ft. high.

Two methods of providing service on the railway while the construction is carried out are illustrated by accompanying photographs. That at left above shows construction along original surface lines. Here a temporary track was built on each side of the construction area prior to the beginning of subway work. At right is shown method of supporting elevated tracks while the subway lines are built below. To support each of the old columns, two 2-ft. square pedestals were extended about 5 ft. below maximum excavation depth; needle beams on these carry old columns.

Funds for the work are being supplied entirely from the New York state grade crossing fund. The New York State Transit Commission with Henry Heins, Jr., chief engineer, Sander Schwartz, chief of division of railroad engineering, and Robert O. Jukes, resident engineer, is supervising construction. For the railroad Charles E. Adams is chief engineer and George Patton, resident engineer.

Because the work has been divided into a number of sections, several contractors are employed. They include: Poirier & McLane; Tomasetti Construction Co.; Arthur A. Johnson Corp. & Necaro Co., Inc.; and Tully & DiNapoli, Inc., all of New York.

Work on Porto Rico air fields being rushed

To meet the urgent needs for defense bases in the Caribbean, thousands of WPA workman are pushing construction on six auxiliary air bases for use by Uncle Sam's army in Porto Rico. These auxiliary bases, located at strategic points on the island, will supplement the army's two main bases on this Caribbean outpost.

The six emergency fields will have paved runways and facilities for refueling, and other operations necessary for military planes. Cost of the six air bases is estimated at $1,750,000. Exact location of the fields has not been publicized by the Army; however, it is understood that each is considerably removed from the two main air bases.

While large quantities of machinery are being used for heavy grading work required on the projects, thousands of WPA workers are being employed with pick and shovel and doing other hand labor operations in an effort to speed-up construction. Although recent heavy rains have been experienced and have somewhat retarded operations, nevertheless the new fields are well ahead of schedule.

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Canadian industries to expand their plants

Great expansion of two of Canada's largest metallurgical plants is to be undertaken in the near future. In Ottawa, Munitions Minister Howe, announced recently that the Dominion Steel & Coal Co., is to make very substantial increases in its iron and steel making facilities at Sydney, Nova Scotia, increasing the melting capacity of the plant to 670,000 tons per year, and the capacity of the rolling mills to 600,000 tons per year. Exact cost figures were not given, but they are estimated at several million dollars.

In Montreal, R. E. Powell, president, Aluminum Co. of Canada, in announcing that the U. S. Government is to purchase $63,000,000 worth of aluminum from his company, stated that the company will expand its facilities at a cost of about $60,000,000. The company's main plant, one of the largest in the world, is located at Arvida, Quebec, close to the great power plants on the Saguenay River. The company has another plant at Shawinigan Falls. Subsequently it was announced that the Aluminum Company of Canada had let a contract to the Foundation Co. of Canada for the construction of a 130,000 hp. addition to the power plant at Chute-a-Caron, the nearest of the Saguenay River plants to the Aluminum Co. plant at Avida.

JOBS OF THE WEEK

AMMUNITION DEPOT, Fallbrook, Calif.
Myers Brothers and J. E. Haddock, Ltd., Los Angeles, Calif., will construct Naval Ammunition Depot, for Bureau of Yards & Docks, Navy Department, Washington, D. C., estimated cost $1,800,000.

PLANT, Louisville, Ky.
National Carbide Co., New York, N. Y., has awarded contract for the construction of plant to manufacture calcium carbide, including two electric furnace units, to Henry Bickel Co., Louisville, Ky. Estimated cost $1,000,000.

HOUSING, Bellevue, Neb.
Thimgan & Son, Murdock, Neb., has been awarded contract to construct houses for workers at Fort Crook Bombing Plant, by George F. Rushart, Fort Crook. Estimated cost $1,000,000.

COURTHOUSE, Harrisburg, Pa.
William A. Berbusse, Jr., Inc., New York, N. Y., has been awarded contract for constructing courthouse for Dauphin County Commissioners, Harrisburg, at $1,297,000. Heating and air conditioning to Corbit's Inc., Reading, $138,977; plumbing to Ray E. Wolfe, Harrisburg, $60,200; electrical work to Keystone Engineering Corp., Reading, $54,250; elevators to Atlantic Elevator Co., Philadelphia, Pa., $60,211. Lawrie & Green, Harrisburg, are architects. Moody & Hutchinson, Philadelphia, are engineers.

HOUSING, Detroit, Mich.
Cauldwell-Wingate Co., New York, N. Y., was lowest bidder on constructing Herman Gardens Housing Project, when Detroit Housing Authority opened bids June 3. $8,212,000 was the lowest bid. G. D. Mason Associates are architects.

ARMY SUPPLY DEPOT, Charlotte, N. C.
William Muirhead, Durham, N. C., has been awarded contract for the construction of three warehouses on Statesville Ave., each 1 story, 185x1,530 ft. by Construction Quartermaster. Estimated cost $3,000,000. William Detrich, Raleigh, is engineer. William C. Olsen, Raleigh, is architect.

APARTMENT, New York, N. Y.
Corporation c/o Emery Roth & Son, New York, N. Y., will construct with separate contracts 18 story, penthouse apartment at Fifth Avenue and 92nd St. Estimated cost $1,000,000.

CLEARWATER DAM, Piedmont, Mo.
Mittry Brothers Construction Co., Los Angeles, Calif., was lowest bidder for constructing rolled fill earthen Clearwater Dam on Black River. Bids were opened by U. S. Engineers, Little Rock, June 3 and lowest bid was $2,790,081.

DAM, FORT LOUDOUN, Knoxville, Tenn.
Tennessee Valley Authority, Knoxville, Tenn., will build by force account additional construction at Fort Loudoun Dam. Estimated cost $15,925,000. This work is in addition to $29,500,000 under construction last year.

HOSPITAL, Brooklyn, N. Y.
Cauldwell Wingate Co., New York, has been awarded contract for 9 story hospital by Methodist Episcopal Hospital. Estimated cost $950,000. C. Butler and A. Erdman, New York, N. Y., are associate architects. Edwards & Hjorth, New York, are engineers.

HOUSING, East Boston, Mass.
John Bowen Co., Inc., Boston, Mass., was lowest bidder for constructing housing project for Boston Housing Authority, Boston. Bids were opened May 29, and lowest bid was $1,564,000. A. Ritchie and Associates, Boston, are architects.

PIPE LINE, Maine to Quebec
Standard Oil Co. of New Jersey, New York, N. Y., has awarded oil pipe line from Montreal, Que., to United States boundary, near Troy, N. Y., from Troy to Gorham, N. H., and eight pumping stations along entire line to Williams Brothers Corp., Tulsa, Okla.; Section from Gorham, N. H., to Portland, Me., is awarded to Oklahoma Construction Co., c/o owner. Total estimated cost $8,000,000.

ARTILLERY SHELL LOADING PLANT, Texarkana, Tex.
John Griffiths Son Construction Co., Chicago, Ill., has been awarded contract for constructing loading plant for artillery shells and bombs by War Department, Washington, D. C. Estimated cost $45,500,000.

AIR BASE, Tuskegee, Ala.
McKissick & McKissick Co., Nashville, Tenn., has been awarded contract to construct air base for training negro flyers by U. S. Engineers, Washington, D. C. Estimated cost is $1,480,295. H. R. Robinson, architect, Washington.

NOTE—Additional bidding and contract news on over 800 projects large and small appear in the Construction News section beginning on page 921.

OBITUARY

ARCHIE A. WHITMORE, engineer in charge of canal construction on the Friant division of the Central Valley Project of the Bureau of Reclamation in California, died suddenly June 9. Mr. Whitmore was born in Mt. Vernon, Mo., Nov. 24, 1885. A graduate of the University of Missouri, he entered the Bureau of Reclamation in 1913 on the Milk River, Mont., project, went to Yakima, Wash., in 1924 as assistant engineer, was transferred to the Kittitas division two years later; from 1934 to 1938 he was engineer in charge of construction on Taylor Park Dam of the Uncompahgre project in Colorado. He came to the Friant division of the Central Valley Project in 1938 and has been engineer in charge of canal construction under R. B. Williams, construction engineer of the Friant division.

COL. CHARLES STARK, 64, construction superintendent of the New Jersey State Highway Department, died June 4 at Philadelphia, Pa.

THOMAS ULVAN TAYLOR, 83, dean emeritus of the College of Engineering of the University of Texas, died May 28 at Austin.

MAJ. JOHN SEWARD, 68, of the engineering division of the Bureau of Internal Revenue died May 28 at Chevy Chase, Md. He served in the World War as a major in the Engineering Corps.

HARRY P. KREINER, 67, partner in the civil engineering firm of Borrie & Kreiner, died June 3 at East Orange, N. J. Mr. Kreiner was formerly engineer at Kearny, N. J. for 25 years.

W. C. MERRYMAN, 80, who retired in 1937 after 37 years service as resident engineer for the Interborough Rapid Transit Co., New York City, died May 30 at Brunswick, Maine.

CHARLES MARION WILKINSON, civil engineer, died May 30, in Baltimore, Md.

GEORGE E. WILLCOMB, technical supervisor of the Albany, N. Y. water and sewage purification plant, died at Menands, N. Y., June 1. He was 61.

ROBERT A. THOMPSON, former state highway engineer of Texas, and one-time chief engineer of the Texas Railroad Commission, died May 30 at Fort Worth, Tex.

H. P. KOEPPE, 67, architectural engineer with the firm of Wyatt C. Hedrick, Inc. died May 30 at Fort Worth, Tex.

RAYMOND A. PEASE, former division engineer for the North Dakota State Highway Department, died recently at Minot, N. D., at the age of 52.

CLAUDE M. MCELWAINE, 66, formerly of the firm of Kirkoff & McElwaine, contractors, died May 30 at Indianapolis.

FRANK H. BRENEMAN, 62, director of the department of streets and public improvements, York, Pa., for the past ten years, died May 30.

S. R. CASTLEBERRY, civil engineer, died June 2 at Kansas City, Mo.

JAMES TRACY WEED, county surveyor of Gallia County, Ohio, died at Columbus, Ohio, June 1.

R. H. DINSMORE, engineer of the Iowa highway commission, died May 19 at Cedar Rapids, Iowa.

MATTHEW F. BRAMLEY, 73, paving contractor, died May 30 at Cleveland, Ohio.

JOHN S. GRAHAM, JR., 51, contractor, died at Jacksonville, Fla. recently. Mr. Graham served with the Canadian Engineers during the World War.

CONTRACTS AND CAPITAL

ENGINEERING CONSTRUCTION awards for the week, $139,825,000, are at the third highest peak of the year, 147 percent higher than in the corresponding 1940 week, and 5 percent above the total for a week ago.

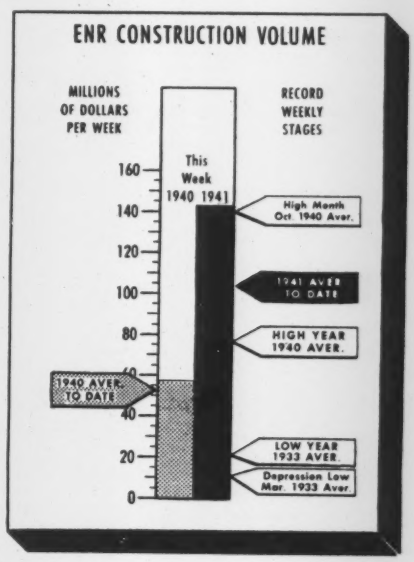
Public construction is 299 percent higher than in the 1940 week, and 11 percent over last week, primarily as a result of the $45,500,000 award for an ammunition loading plant in Texas, and the $15,000,000 TVA construction project at Fort Loudoun Dam in Tennessee. Private awards are up 2 percent compared with a year ago, but are 11 percent below a week ago.

The week's construction total brings 1941 volume to $2,524,577,000, just double the total for the 24-week period last year. Private awards, $699,725,000, are up 61 percent, and public construction, $1,824,852,000, is 122 percent above a year ago due to the 590 percent gain in federal work.

In the classified construction groups, gains over the 1940 week are in waterworks, commercial and public buildings, earthwork and drainage, and unclassified construction. Increases over last week are in industrial, commercial and public buildings, and earthwork and drainage.

New capital for construction purposes for the week totals $23,084,000, an increase of 70 percent over the volume for the corresponding 1940 week. The current week's new financing is made up of $11,949,000 in state and municipal bond sales, and $11,135,000 in corporate security issues.

New construction financing for 1941 to date, $3,305,568,000, tops the volume for the 24-week period last year by 442 percent.



CONTRACTS

(Thousands of dollars)

	Week Ending June 13 1940	June 5 1941	June 12 1941
Federal	$4,475	$47,398	$88,407
State & Municipal	23,243	52,000	22,024
Total public	$27,718	$99,398	$110,431
Total private	28,923	33,172	29,394
TOTALS	$56,641	$132,570	$139,825
Cumulative 1941 (24 weeks)			$2,524,577
1940 (24 weeks)			$1,258,461

Note: Minimum size projects included are: Waterworks and waterways projects, $15,000; other public works, $25,000; industrial buildings, $40,000; other buildings, $150,000.

NEW PRODUCTIVE CAPITAL

	Cumulative 1940 24 weeks	1941 24 weeks
NON-FEDERAL	$610,873	$414,231
Corp. Securities	88,149	125,393
State & Mun.	430,644	236,495
U.S.H.A. loans	85,256	22,550
R.F.C. loans	6,824	29,793
FEDERAL		$2,891,337
TOTAL CAPITAL	$610,873	$3,305,568

FHA MORTGAGES

	Week Ending June 8 1940	May 31 1941	June 7 1941
Selected for appraisal	$28,169	$28,803	$31,459
Cumulative 1941 (23 weeks)			$652,682*
1940 (23 weeks)			$555,036*

* Subject to revision.

ENR INDEX NUMBERS

Index Base = 100		1913	1926
Construction Cost	June '41	256.79	123.44
Building Cost	June '41	209.41	113.20
Volume	May '41	275	121

CONTRACT UNIT PRICES

What contractors are bidding on different kinds of construction work

HIGHWAYS, MASSACHUSETTS

OWNER: Commonwealth of Massachusetts, Dept. of Public Works, Boston; M. J. Dalton, Worcester, engr.

PROJECT: Construction of bituminous macadam highway and two reinforced concrete bridges along new location of Providence Road, Sutton, Worcester County, Mass.

CONDITIONS: Contractor to furnish all materials and complete work by July 3, 1942. Bids were asked on penolithic or bituminous surfacing; contract awarded on basis of latter. Highway transportation available, and rail facilities available within reasonable haul. Road to be constructed is on new location. No traffic to be provided for except at cross-roads. Minimum wage rates specified are: skilled labor, $1.00 per hr.; semi-skilled, 65c.; and common, 62½c.

BIDS: Eight bids were opened May 6, 1941, ranging from the contract low of $481,354 to $709,942.

LIST OF BIDDERS:

1. C. & R. Constr. Co., Roslindale, Mass. (contract) $481,354
2. Carlo Bianchi Co., Inc., Framingham, Mass. 499,696
3. P. Salvucci, Waltham, Mass. 507,049
4. Bronx Waterworks Corp., Bronx, N. Y. 516,282
5. V. Barletta Co., Roslindale, Mass. 525,057
6. Lane Constr. Corp., Meriden, Conn. 540,489
7. M. De Matteo Constr. Corp., Roslindale, Mass. 613,228
8. G. Bonazolli & Son, Hudson, Mass. 709,942

Item	Quan.	Unit Prices (1)	(2)	(3)
1. Clear and grub	42 ac.	$50.00	$150.00	$100.00
2. Roadway earth excavation	62,000 c. y.	.79	.35	.35
3. Class A rock excavation	65,000 c. y.	.79	1.25	1.25
4. Peat, remove and stack	31,000 c. y.	.20	.30	.35
5. Bridge excavation	1,200 c. y.	1.00	3.00	2.00
6. Trench excavation	9,300 c. y.	1.00	1.00	1.00
7. Channel excavation	800 c. y.	1.00	1.00	1.00
8. Class B rock excavation	2,700 c. y.	3.00	4.00	2.00
9. Trees removed	16 ea.	10.00	10.00	10.00
10. Ordinary borrow	1,253,000 c. y.	.30	.30	.35
11. Gravel borrow	73,450 c. y.	.45	.40	.50
12. Sand borrow	2,500 c. y.	1.00	1.00	1.00
13. Strip gravel pits	7,365 c. y.	.10	.15	.20
14. Fine grading, rolling and finish	1,222,000 s. y.	.03	.03	.03
15. Crushed stone for base course	14,900 ton	2.38	2.40	2.50
16. Gravel for surfacing	200 c. y.	1.50	1.00	1.00
17. Bituminous surface treatment	450 gal.	.10	.20	.10
18. Cl. 1 bitum. conc. pavement	377 ton	6.50	8.00	7.00
19. Cl. A cement concrete masonry	2,255 c. y.	21.00	17.50	17.00
20. Class B cem. concrete masonry	513 c. y.	14.00	17.00	17.00
21. Class C cem. concrete masonry	225 c. y.	18.00	18.00	17.00
22. Class D cem. concrete masonry	55 c. y.	60.00	65.00	17.00
23. Steel reinforcement, structures	280,250 lb.	.045	.045	.05
24. Membrane waterproofing	1,115 s. y.	2.00	2.00	2.00
25. Bituminous damp-proofing	1,040 s. y.	.30	.35	.25
26. Field stone masonry dry	105 c. y.	8.00	10.00	10.00
27. Metal bridge railings, type A	185 l. f.	15.50	12.00	15.00
28. Metal bridge railings, type B	102 l. f.	19.00	20.00	15.00
29. Balance stone walls; remove, rebuild	100 l. f.	.50	.60	1.00
30. Special curing for concrete	1,440 s. f.	.05	.07	.20
31. Catch basins	127 ea.	60.00	60.00	60.00
32. Manholes	18 ea.	60.00	60.00	60.00
33. Manhole frame and cover	1 ea.	25.00	25.00	30.00
34. 12-in. rein. concrete pipe	4,240 l. f.	1.10	1.25	1.20
35. 15-in. rein. concrete pipe	130 l. f.	1.45	1.50	2.00
36. 18-in. rein. concrete pipe	1,230 l. f.	1.85	2.25	2.00
37. 24-in. rein. concrete pipe	1,270 l. f.	2.85	3.50	3.00
38. 30-in. rein. concrete pipe	460 l. f.	4.00	5.50	4.00
39. 42-in. rein. concrete pipe	300 l. f.	7.50	7.00	8.00
40. 48-in. rein. concrete pipe	116 l. f.	8.70	8.50	10.00
41. 60-in. rein. concrete pipe	140 l. f.	15.50	15.00	15.00
42. Asph. coated corr. metal pipe, 12-in.	54 l. f.	1.30	1.50	2.00
43. Asph. coated corr. metal pipe, 18-in.	30 l. f.	1.85	2.25	2.00
44. 6-in. heavy weight cast iron pipe	400 l. f.	1.40	1.25	1.50
45. 12-in. cem. conc. pipe	2,470 l. f.	.60	.75	.80
46. 15-in. cem. conc. pipe	824 l. f.	.95	1.10	1.00
47. 18-in. cem. conc. pipe	360 l. f.	1.35	1.50	1.50
48. 8-in. subdrain	2,415 l. f.	2.00	2.50	1.00
49. 12-in. subdrain	284 l. f.	2.25	3.00	2.00
50. 15-in. subdrain	186 l. f.	2.50	3.50	2.00
51. 6-in. perforated metal pipe	160 l. f.	.65	2.25	1.00
52. Penolithic macadam paving (waterways)	50 s. y.	2.00	3.00	1.00
53. Stock fence	5,500 l. f.	.18	.20	.16
54. Stock fence gates	9 ea.	15.00	15.00	15.00
55. Highway guard, type M6C	1,350 l. f.	.87	.90	1.00
56. Highway guard, type MSC	9,200 l. f.	.96	1.00	1.00
57. Highway guard end anchors	49 ea.	30.00	40.00	35.00
58. Hwy. guard intermediate anchors	12 ea.	30.00	40.00	35.00
59. Hwy. guard bridge anchors	6 ea.	25.00	35.00	40.00
60. Individual posts	60 ea.	3.00	3.00	3.00
61. Barrier fence	216 l. f.	2.00	2.75	3.00
62. Granite curb, type VA4, str	150 l. f.	1.00	1.00	1.50
63. Granite curb, type VB, str	8,100 l. f.	.85	.80	1.00
64. Granite curb, type VB, curved	1,860 l. f.	1.10	1.00	1.50
65. Granite curb, type VA5, str	507 l. f.	1.15	1.20	1.00
66. Granite curb inlets	89 ea.	9.50	10.00	15.00
67. Granite curb inlets, curved	6 ea.	12.50	12.00	20.00
68. Granite curb corners, type A	24 ea.	5.00	5.00	5.00
69. Concrete edging, Type SFA, str	5,250 l. f.	.82	.95	1.00
70. Concrete edging, type SFA, curved	700 l. f.	1.10	1.20	1.00
71. Concrete edging transitions	8 ea.	8.00	9.00	5.00
72. Concrete transition curb inlets (str.)	14 ea.	12.00	14.00	20.00
73. Conc. trans. curb inlets (curved)	1 ea.	15.00	20.00	20.00
74. Remove and reset crub	200 l. f.	.50	.50	1.00
75. Granolithic walk	250 s. y.	2.00	2.00	2.00
76. Bit. conc. walk surface	43.5 ton	6.50	8.00	8.00
77. Traffic signal conduit, type BF	550 l. f.	.50	.60	1.00
78. Town line post, remove and reset	1 ea.	10.00	15.00	15.00
79. Bounds	84 ea.	4.00	5.00	5.00
80. Remove and reset bounds	2 ea.	5.00	5.00	5.00
81. Remove and stack bounds	5 ea.	5.00	5.00	2.00
82. Seeding	45,000 s. y.	.05	.06	.05
83. Peat rehandled and spread	10,800 c. y.	.25	.50	.35
84. Cr. stone for bitum. macadam surf.	10,600 ton	2.40	2.50	2.50
85. Bitum. for macadam surf	107,500 gal.	.09	.0975	.10
86. Bitum. for macadam surf. (seal)	62,000 gal.	.09	.0975	.10

RAILROAD ROADBED AND TUNNELS, ALASKA

OWNER: U. S. Engineer Office, Seattle, Wash.; Col. B. C. Dunn, district engineer.

PROJECT: Construction of 11.2 miles of roadbed and two tunnels for Passage Canal Connection of the Alaska Railroad located about midway between Seward and Anchorage, Alaska. Length of project is from head of Passage Canal in Prince William Sound to Turnagain arm of Cook Inlet.

CONDITIONS: Contractor to furnish all materials and complete work in 450 calendar days. The two tunnels are to be driven through solid rock. Rail, highway and water transportation facilities available to vicinity of work, but contractor must build road to first tunnel site, and provide necessary housing for workmen. Materials will probably be landed in barges, then carried by railway or local highways to site of work. Wage rates stipulated are: skilled labor, $1.50 per hr.; semi-skilled, $1.20; and common, 90c. per hr.

BIDS: Two bids were opened May 12, 1941, the low of $4,074,616, and $4,267,435. Engineer's estimate $2,962,157.

LIST OF BIDDERS:

1. Seaboard Construction Corp., Mount Kisco, N. Y. $4,074,616
2. Morrison-Knudsen Co., Boise, Idaho; General Constr. Co., Seattle, Wash.; J. F. Shea & Co., Inc., Portland, Ore. 4,267,435

Item	Quan.	Unit Prices (1)	(2)	(3)*
1. Clearing	200 ac.	$100.00	$300.00	$120.00
2. Solid rock excavation	200,000 c. y.	2.85	1.80	1.50
3. Loose rock excavation	20,000 c. y.	.50	1.45	.65
4. Common excavation	100,000 c. y.	.20	.90	.35
5. Wet excavation	100 c. y.	5.00	10.00	6.00
6. Solid rock borrow	500 c. y.	2.50	1.75	1.50
7. Common borrow	100,000 c. y.	.50	.90	.50
8. Tunnel excavation	246,000 c. y.	12.765	13.50	9.45
9. Overhaul A	350,000 sta. y.	.02	.018	.015
10. Overhaul B	3,000,000 sta. y.	.01	.018	.007
11. Overhaul C	3,500,000 sta. y.	.007	.02	.005
12. Timber bridge piling, below cutoff	8,700 l. f.	1.25	2.20	.60
13. Timber bridge piling above cutoff	2,600 l. f.	1.00	.50	.30
14. Metal pile shoes in place	50 ea.	10.00	5.00	1.70
15. Bridge timber in place	145 M bm.	125.00	160.00	95.00
16. Tunnel timber in place	1,200 M bm.	108.00	75.00	100.00
17. Portal timber in place	240 M bm.	120.00	160.00	80.00
18. Culvert timber in place	5 M bm.	140.00	160.00	70.00
19. 30-in. 14-ga. corr. galv. iron pipe	116 l. f.	5.00	7.00	5.30
20. 36-in. 14-ga. corr. galv. iron pipe	206 l. f.	6.00	8.00	6.50
21. 42-in. 10-ga. corr. galv. iron pipe	112 l. f.	11.00	14.00	12.40
22. 48-in. 10-ga. corr. galv. iron pipe	96 l. f.	13.00	17.00	14.60
23. 48-in. 12-ga. corr. galv. iron pipe	80 l. f.	12.00	15.00	11.75
24. 60-in. 8-ga. corr. galv. iron pipe	236 l. f.	20.00	22.50	22.30

*Engineer's estimate.

CONSTRUCTION REPORTS

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(Daily service also available—Write for details)

Location of ENR Correspondents

Symbols and Abbreviations Include:

† Federal Government
★ Project of $500,000 or over
ENR Engineering News-Record
CD Engineering News-Record Construction Daily

Projects—By Size

Construction projects here reported cover the United States and Canada, are of these minimum sizes or larger; water supply, earthwork, waterworks, $15,000; other public works, $25,000; industrial buildings, $40,000; other buildings, $150,000.

Classes of Construction
(Named in order of Listing)

Water Supply — Unclassified
Sewers, Waste Disposal — Latin America
Bridges, Grade Cross'gs — Public Buildings
Streets & Roads — Commercial Buildings
Earthwork, Waterways — Industrial Buildings

Stages Reported

PROPOSED: (except Streets & Roads):

BIDS ASKED (new announcements only. For full calendar, see also preceding issues of ENR);

LOW BIDDERS: All low bidder news will be the final reports published on the projects involved except where award is not made to the low bidder. In this case, a supplementary contract award report will be published.

CONTRACTS AWARDED: Except awards to low bidders previously reported in low bidder stage.

Dates shown are of issue in which last previous report was published.

WATER SUPPLY

PROPOSED WORK

★**Ala., Mobile**—Imprv. water sys. $1,640,000, J. B. Converse & Co., Wilson Bldg., Mobile, engr. CD 3/25—ENR 3/27.

★**†Ky., Fort Knox**—Con. Q.M., water supply sys., sewage collection, sewage treatment, hospital, health center. $1,837,000.

BIDS ASKED

Bids Asked June 15

N. Y., Locust Valley—Bd. Water Comrs. Locust Valley Dist., pump house. Over $15,000.

Bids Asked June 17

†Ill., Fort Sheridan—Con. Q.M., Fort Sheridan, elevated steel water tank.

Bids Asked June 19

N. Y., Colonie (br. Albany)—Latham Water Dist., Colonie, at Town Hall, Newtonville, watermain exten. J. W. Howarth, town clk., Town Hall, Newtonville. Solomon & Keis, 257 Bway., Troy, consult. engrs.; adv. ENR 6/12.

Bids Asked June 20

Ky., Eddyville—Imprv. water supply plant, new pumps, piping, building addns., State Prison.

Pa., Phila.—Dpt. P. Wks., J. H. Neeson dir., City Hall, furnishing, erecting 9 horizontal, centrifugal pumps, electric motor units for Torresdale Pump. Sta. Over $25,000.

Bids Asked June 21

†Idaho, Boise—Veterans Administration, 764 Arlington Bldg., Wash., D. C., brick pumphouse, 1 deep well turbine pump with motor and starting equip., Project 1307B.

N. Y., New York—Bd. Water Supply, G. J. Gillespie, pres., 346 Bway., Contr. 369, furnishing, del. bronze Venturi meter for Shaft 18 Downtake of Kensico-Hill View Tunnel Delaware Aqueduct; adv. ENR 6/12, CD 5/14—ENR 5/22.

Bids Asked July 1

Mo., Kansas City—Imprv., altering basins, $254,000, Black & Veatch, 4706 Bway., engrs.; constructing chemicals building, $125,000, Burns & McDonnell, 107 W. Linwood Blvd., engrs. Both projects in connection with water softening plant, North Kansas City. CD 5/27—ENR 6/5.

Bids Asked

†Ill., Scott Field (Belleville)—U. S. Eng., 816 U. S. Courthouse and Customhouse, St. Louis, Mo., 3 m.g. steel water reservoir.

LOW BIDDERS

†Ill., Scott Field (Belleville)—U. S. Eng., 816 U. S. Courthouse and Customhouse, 12 and Market Sts., St. Louis, Mo., May 28, booster pump station for water supply, from Hoeffken Bros. Constr. Co., Belleville, and G. E. Tillman, Centralia, **$21,900.** CD 5/20—ENR 5/22.

†N. H., Portsmouth—Yards & Docks, Navy Dpt., Wash., D. C., June 2, steel elevated water tank, piping, central house, Spec. 10385, from Pittsburgh Des Moines Steel Co., Neville Island, Pittsburgh, Pa., **$121,900.** CD 5/15—ENR 5/22.

N. C., Jacksonville—C. E. Warn, mayor, May 23, water and sewer imprvs., from J. B. McCrary Co., 22 Marietta St. Bl., Atlanta, Ga., **$48,776.** CD 5/14.

CONTRACTS AWARDED

Ia., Orient—E. J. Carlyle, city clk., WW sys., **WPA. $30,000.** CD 5/21—ENR 5/29.

Kan., Solomon—WW imprvs., 2 wells, main, 2 turbine pumps, well houses. **WPA. $30,000.** Paulette & Wilson, Salina, engrs. CD 3/26—ENR 4/3.

Miss., Meridian—Laying watermains. **WPA. $41,842.**

Mont., Glendive—A. Colin, city clk., storage reservoir to J. Sterhan, Glendive. **$26,612.** Bids 5/27. CD 5/20.

N. Y., Newark—2,260 ft. watermains, 3 streets. Owner supervises. **$15,000.**

O., Chauncey—Water sys. and plant. **WPA. $35,000.** J. J. Morgan, 255 E. Broad St., Columbus, engr.

O., Spencerville—Wright Oil Co., F. M. Wright, genl. mgr., Olean, N. Y., steel, concrete water tower for water flooding operations, near here, own forces separate contracts. **$60,000.**

Pa., Bally—Bally Water Co., Bally, chlorinator unit at water plant, imprv. WW sys., separate contracts and own forces. **$15,000.** W. Spotts, 525 Elm St., Reading, engr. CD 5/26—ENR 5/29.

Pa., Erie—Bureau Water, 701 French St., c.i. watermains, service connections, etc. adjoining Millcreek Twp., near here, own forces. **$15,000-$20,000.** J. Dunwoody, c/o owner, supt. CD 5/26—ENR 5/29, under Millcreek Twp.

★**Tex., Fort Worth**—S. H. Bothwell, city mgr., c.i. watermain from city water sys. to bomber plant, sanitary sewer main and 1 lift station from city sewerage sys. **WPA. $541,914.** W. O. Jones, city engr.

SEWERS, WASTE DISPOSAL

PROPOSED WORK

N. Y., Great Neck—Great Neck Sewer Dist., 236 E. Shore Rd., sewage treatment plant. Over $50,000. C. Watson, 46 Grace Ave., engr.

★**†Tex., Brownwood** — Con. Q.M., Camp Bowie, sanitary sewage collection lines, $200,000; sewage treatment plant, $300,000.

BIDS ASKED

Bids Asked June 16

N. Y., New York—President, Bronx Boro, Bronx County Bldg., 851 Grand Concourse, sewer, appurtenances, Oak Point Ave., Faile St., etc.

Pa., Phila.—Dpt. P. Wks., J. H. Neeson, dir., Bureau Eng., City Hall Annex, sewers Rawnhurst, Lawnsdale, Burholme, and throughout city, over $100,000; sewage disposal project, over $100,000.

Bids Asked June 18

Que., Lachute—G. Filion, municipality clk., sewers. $25,000. CD 4/17—ENR 4/24.

Bids Asked June 19

Mass., Quincy—Commonwealth of Massachusetts, Metropolitan Dist. Comn., Sewer Div., 20 Somerset St., Boston, furnishing, erecting pump. equip., remodeling station at Hough's Neck sewage pump. lift station. Over $10,000.

N. Y., New York—Dpt. P. Wks., Municipal Bldg., experimental odor control plant for sludge storage building, Wards Island Sewage Treatment Works.

Bids Asked

★**†Fla., Key West**—Yards & Docks; Navy Dpt., 18 St. and Constitution Ave. N.W., Wash., D. C., pump. plant, Key West Naval Base, Spec. 10317. $800,000.

LOW BIDDERS

†Ariz., Phoenix—U. S. Eng., 751 S. Figueroa St., Los Angeles, Calif., May 31, sewage treatment plant Phoenix Military Airport, near Litchfield Park, from H. B. Nicholson, 438 Chamber of Commerce Bldg., Los Angeles, Calif., **$74,969.** CD 5/26.

†Calif., March Field—U. S. Eng., 751 S. Figueroa St., Los Angeles, June 3, sewage treatment plant, from Fritz Ziebarth, 820 W. Esther St., Long Beach, **$174,800.**

†Calif., Mather Field—U. S. Eng., 208 Postoffice Bldg., Sacramento, May 29, sewage disposal plant, appurtenant facilities, from F. J. Twaits Co., 816 West 5 St., Los Angeles, **$59,750.** CD 5/20.

†Me., Kittery—Yards & Docks, Navy Dpt., Portsmouth, N. H., June 4, sewerage, drainage, water sys., Kittery Housing, Spec. 10377, from R. Zoppo, 44 Ramsdell Ave., Roslindale, **$78,890.** CD 5/22—ENR 5/29.

Md., Baltimore—Bd. Awards, City Hall, June 4, sanitary sewers, Contr. 337, from Square Constr. Co., 6230 Eastern Ave., **$149,953.** CD 5/28.

†N. J., Fort Dix—War Dpt., 20 St. and Constitution Ave. N.W., Wash., D. C., sewage treatment plant addn., pump. station, new sludge digestion tank, etc., from C. S. Moses, Edgewater Park. **$129,000.** CD 5/13—ENR 5/15.

N. Y., Brooklyn—Dpt. P. Wks., Municipal Bldg., New York, June 4, Contr. 15, heating, ventilating, structures, equip., Coney Island Sewage Treatment Works, from H. Sand & Co., Inc., 611 Bway., New York. **$48,860.** CD 5/20—ENR 5/22.

†N. Y., Iona Island—P. Wks. Officer, 3rd Naval Dist., 90 Church St., New York, sewage disposal sys., from Coriglian Bros., 56 Sherwood Ave., Ossining, **$33,900.** CD 5/29.

Ore., Pendleton—City, May 29, sewage disposal plant, from R. H. Sheldon, 2022 W. 3 Ave., Spokane, Wash. **$36,906.** CD 5/20.

CONTRACTS AWARDED

Ark., Conway—A. Hamberg, street supt., storm sewer ditches for drainage. **WPA. $50,000.**

†Ind., Jeffersonville—Con. Q.M., sewage disposal plant, lift station, force main, to E. A. Simon, 7520 Buckingham Dr., St. Louis, Mo., **$64,983.**

Ia., Garner—H. V. Reed, city clk., sewage treatment plant, to Dan Christensen Constr. Co., 5091/2 3 Ave. S.E. Cedar Rapids. **$30,886.** Currie Eng. Co., Webster City, engr.

N. J., Clark—Sheeting, vitr. tile sewers, Sects. 1 and 2. **WPA. $66,315.** J. H. Weitzen, Smith and Hobart Sts., Perth Amboy, WPA and owner's engr. CD 5/23—ENR 5/29.

N. J., Trenton—Hamilton Twp., Twp. Hall, Greenwood Ave., vitr. clay sanitary sewers, Hamilton Sq., Mercerville and Rosemont Sts., etc., **WPA. $55,700.** W. D. Cougle, 1102 S. Broad St., Trenton, WPA and owner's engr. CD 6/2—ENR 6/5.

Pa., Meadville—American Viscose Corp., H. O. Davidson, ch. engr., sewage disposal plant, alterations, equip., Vernon Twp., near here, to Freeman & Jones, 5716 Euclid Ave., Cleveland, O. Est. **$70,000.** CD 5/12—ENR 5/15.

Wis., Gilman—Sewage treatment plant, sewerage sys. **WPA. $87,000.** CD 3/12—ENR 3/20.

Wis., Milwaukee—Metropolitan Sewerage Comm., Jones Island, Milwaukee, main sanitary sewers, Grantosa Drive and N. 100 St., to General Contractors, Inc., 494 N 49 St., **$72,370.** Bids 6/2, awarded 6/2. CD 5/26.

BRIDGES, GRADE CROSSINGS

PROPOSED WORK

★**Mass., Salem**—Commonwealth of Massachusetts, Dpt. P. Wks., H. L. McDonald, comr., 100 Nashua St., Boston, plans nearing

BRIDGES, etc. (Proposed Work, Cont'd.)

completion eliminating structural steel, concrete Bridge St. railroad crossing. $550,000. Fay, Spofford & Thorndike, 11 Beacon St., Boston, engrs.

Pa., Scranton—W. Schunk, dir. P. Wks., F. K. Derby, city engr. revised plans stone, concrete hy. bridge over Nay Aug Falls, Elmhurst Blvd. $25,000-$30,000. A. B. Cohen, 1 Madison Ave., New York, N. Y., engr.

South Carolina—State Hy. Dpt., Columbia, rejected bids May 150 ft. rein-con. bridge over Steel Creek, York Co. Will readvertise. CD 5/27—ENR 6/5 under Roads, LB.

★**Tex., Galveston**—City and Galveston Co., rein.-con., steel tunnel, between Galveston and Port Bolivar. $2,000,000.

BIDS ASKED

Bids Asked June 17

Ohio—State Hy. Dpt., Columbus, grade crossing elimination project with New York Central R.R., six track steel girder underpass structure on concrete substructure, grading, drainage structures, rein.-con. paving, roadside imprv., 0.249 mi. Sect. Painesville SH520, Lake Co. $343,720.

South Carolina—State Hy. Dpt., Columbia, treated timber, structural steel bridge under Seaboard Air Line Ry., concrete paving 0.104 mi. approaches, Center St., Route 907, Chester, Chester Co.; 330 ft. rein.-con. bridge over Little Wateree Creek, 270 ft., rein.-con. bridge over Big Wateree Creek, Route 5, Fairfield Co.; 150 ft. rein.-con. bridge over Colonel's Creek, Route 262, Richland Co.; treated timber, rein.-con., structural steel bridge under Southern Ry., Route 9; treated timber, rein.-con., structural steel bridge under Southern Ry., Route 9, both Spartanburg Co.; 150 ft. rein.-con. bridge over Steel Creek, U.S. Rt. 21, York Co. C. R. McMillan, Calhoun State Office Bldg., Columbia, hy. engr.

S. C., Greenville—Greenville Co., J. P. Ashmore, superv., Courthouse, 312 ft. bridge over Reedy River at point between Hillside school and W. D. Ridgeway's Cotton Gin, incl. moving 200 ft. steel bridge from point on Saluda River, and re-erecting same over Reedy River as explained above, furnishing, erecting four 28 ft., steel, timber approach spans, M. H. Woodward, co. engr.

Bids Asked June 18

Maine—State Hy. Comn., L. D. Barrows, ch. engr., Augusta, Old Iron Bridge over Meduxnekeag River, Houlton, concrete and steel "H" beam piles, and Great Works Bridge, Sanford, about 119 yd. rein.-con. Over $25,000. CD 6/5—ENR 6/12.

Bids Asked June 19

†**Louisiana**—U. S. Eng., foot of Prytania St., New Orleans, 6 creosoted pile, timber roadway trestles, with compacted earth fill approaches, 2 across Simmesport Ring levee borrow pit and 4 across Brushy Bayou.

Bids Asked June 20

Pennsylvania—State Hy. Dpt., I. L. Hughes, secy., Harrisburg, continuous rein.-con. deck I-beam overpass, native stone, Type A or crushed aggregate base with bituminous surfacing, 3,691 ft. Legislative Route 36068, Sect. 1, East Donegal Twp., Lancaster Co.; 2 plate girder and 4 rein.-con. bridges, native stone, Type A or crushed aggregate base with bituminous surfacing 15,517 ft. Legislative Route 585, sect. 3, 513, Sec. 1,414, Derry Twp., Montour Co. T. C. Frame, c/o owner, ch. engr.

Bids Asked June 23

Minn., Crookston—Polk Co., H. J. Welte, aud., combination timber-steel bridge, Sect. 23; reconstructing twp. bridge Sect. 21, both near Higdem; combination timber-steel bridge, Sect. 25, near Northland; repairing bridge Sect. 15; and bridge SAR 10, both near Andover. E. H. Harding, Crookston, co. engr.

†**Washington** — Bureau Reclamation, Coulee Dam, Wash., painting Kettle Falls R.R. bridge over Columbia River, county bridge and railroad bridge over cover Kettle River Gorge, railroad bridge over Kettle River, near Boyds on relocation of Great Northern Ry., Columbia River Reservoir, Columbia Basin Proj., Spec. 1516-D.

Bids Asked June 24

Massachusetts—Commonwealth of Massachusetts, Dpt. P. Wks., H. L. McDonald, comr., 100 Nashua St., Boston, FAGM 18 A(1), grade crossing elimination, steel bridge over New York, New Haven & Hartford R.R., Bird St. $80,000.

Bids Asked June 25

Calif., Guerneville—C. H. Purcell, engr. State Hy. Dpt., Sacramento, rein.-con. sidehill viaduct exten. Russian River, Sonoma Co. 2 mi. west of here.

Bids Asked June 26

Calif., Los Angeles—State Hy. Dpt., 808 State Bldg., 2 rein.-con. bridges, Bishops Rd. and N. Figueroa St. Over $25,000. C. H. Purcell, 808 State Bldg., hy. engr.

Bids Asked June 30

†**Va., Great Bridge**—U. S. Eng., Norfolk, Va., symmetrical double swing hy. bridge over Inland Waterway; adv. ENR 6/12.

Bids Asked July 1

Va., Wheeling—R. L. Plummer, city mgr., City-County Bldg., bridge over Wheeling Creek, Chapline St. Harrington & Cortelyou, 1004 Baltimore Ave., Kansas City, Mo., consult. engrs.

LOW BIDDERS

Alabama—C. J. Sherlock, hy. dir., Montgomery, May 30, bridges, DeKalb Co. from L. I. Barber, Moultrie, **$45,167.** CD 5/23.

Colorado—State Hy. Dpt., Denver, June 3, bridge, approaches, San Miguel Co., from F. M. Kenney, 56 Steele St., Denver, **$57,210** ***grade crossing overpass, Denver Co., from Colorado Bridge & Constr. Co., 2354 Kearney St., Denver, **$40,598*****railroad overpass, gravel surfacing Grand Co., from Larson Constr. Co., 2811 Walnut St., Denver, **$95,144.** CD 5/28.

Delaware—State Hy. Dpt., Dover, June 4, Stanton Bridge, Stanton, New Castle Co., from J. A. Bader & Co., Lackey Bldg., Wilmington. **$42,944.** CD 5/13—ENR 5/15 under Roads.

Mich., Saginaw—Shirley W. Corrigan, city clk., May 20, reconditioning 6 St. steel bridge, swing span with two 72 ft. wide spans, from **Stewart Perry** Co., Whitmore Lake, Mich. **$55,816.** CD 5/9—ENR 5/15.

New Hampshire—State Hy. Dpt., Concord, June 5, 179 ft. deck plate girder bridge, approaches, Rt. 202, Peterboro, Hillsboro, from Eng. Service & Constr. Co., Devonshire St., Boston, Mass. **$87,431.** CD 5/22—ENR 5/29.

N. Y., New York—Transit Comn., Metropolitan Div., Dpt. Pub. Serv., 270 Madison Ave., W. G. Fullen, chn., June 3, reconstructing bridges carrying Melrose Ave. over tracks Port Morris branch of New York & Harlem R.R. Co. (leased and operated by New York Central R.R. Co., Harlem-Electric Div.) and carrying Melrose Ave. over tracks New York & Harlem R.R. Co. (leased by New York Central R.R. Co., Harlem-Electric Div.) and related structures, Bronx Boro, from Kenny & Finnerty, Inc., Vernon Blvd. and 50 Ave., Long Island City. **$418,448.** CD 5/20—ENR 5/22.

North Carolina—State Hy. and P. Wks. Comn., Raleigh, May 22, structures, Wake Co., from R. H. Small, P. O. Box 3187, Charlotte. **$35,243.** CD 5/12—ENR 5/15.

Pennsylvania—At office I. L. Hughes, secy. Hy. Dpt., Harrisburg, June 6, plate girder bridge, surfacing 716 ft. Tioga Co., from W. S. Rice, 114 S. Main St., Mansfield, **$28,728*****overpass bridge, paving, 1,376 ft. Delaware Co., from S. Ciccone, 6528 Girard Ave., Phila., **$52,638*****I-beam bridge, paving, 868 ft. Washington Co., from C. Balazick, Jefferson, **$32,952** ***reln.-con. bridge paving 3,225 ft. Butler Co., from Howes & Farrell, Inc., Oneida, N. Y., **$51,866.** CD 5/27.

★**Texas**—State Hy. Comm., B. P. Gentry, chn., Austin, May 29, G. C. & S. E. Ry. overpass and St. L. and S. F. Ry and St. L. S. W. Ry. overpass, Dallas Co., from Oran Speer, Alvord, **$378,560** and **$217,597** respectively, est. $380,000 and $216,000 respectively***underpass DeWitt Co., from R. C. Buckner, Box 609, Jacksonville, **$67,678.** CD 5/20—ENR 5/22.

Virginia—Dpt. Hys., Richmond, June 5, overpass, 0.14 mi. Norfolk Co., from W. N. Jackson, Roanoke, **$172,908*****widening overpass, Southern Ry., imprv. hy. 1.6 mi. Amherst Co., from Pendleton Constr. Corp., Wytheville, **$130,189*****overpass, approaches, 0.56 mi. Clarke Co., from Blackwell Engr. & Constr. Co., Warrenton, **$98,514.** CD 5/26—ENR 5/29, under Roads.

CONTRACTS AWARDED

Arkansas—State Hy. Comm., Little Rock, bridges Lawrence Co., to S. M. Dixon, Warren. **$132,960.** Est. $120,000; overpass, Pulaski Co., to J. P. McNulty, Pine Bluff. **$141,728.** Est. $100,000. CD 5/29.

Ohio—State Hy. Dpt., Columbus, steel beam approach spans, re-erecting steel truss bridge on new concrete piers and caps, etc. 0.072 mi. Coshocton Co., to C. R. Boulton, 10 E. Town St., Columbus, **$42,235.** Est. $47,530. CD 5/26—ENR 5/29, under Roads.

West Virginia—State Road Comn., Charleston, Bridge 1453, and Bridge 1452, Randolph Co., to Dodd & Archer, Spencer, **$90,480** and **$151,822** respectively. CD 5/16—ENR 5/22.

STREETS AND ROADS

BIDS ASKED

Bids Asked June 16

N. J., Quakertown—Franklin Twp., Town Hall. Type A or T on macadam surfacing 6,819 sq. yd. River Rd., Franklin Twp. F. W. Bohren, Flemington, engr.

N. Y., New York—President Bronx Boro, Bronx County Bldg., 851 Grand Concourse, brick paving W. 168 St.

Pa., Pleasantville — D. Arnold, boro secy., grading, bituminous materials on stone surfacing 1½ mi. streets. $25,000.

Bids Asked June 17

Ia., Hampton—Franklin Co., grading, channel change 38.2 mi. secondary road. C. P. Rudisill, co. engr.

Kansas—State Hy. Dpt. at office Co. Clk., Oskaloosa, grading 1.164 mi. FAS 540 A, Jackson Co.; 4.844 mi. FAS 540 B, surfacing for detour 9.7 mi. FAS 540 B, both Atchinson Co.; stabilized and double asphalt surface treatment 2.936 mi. FA 268 F, Leavenworth Co.; 1.338 mi. FA 268 G; 4.615 mi. FA 268 C, parts 1 and 2, both Jefferson Co.

Kan., Newton — W. O. Cuthbertson, mgr., rein.-con. paving 10 blocks Main St. $70,000. Tentative date. Paulette & Wilson, Salina, engrs.

Maryland—State Roads Comn., Baltimore, gravel surfacing, bituminous stabilization, grading, drainage 1.933 mi. Cayots Corner-St. Augustine Rd., Contr. Ce 226-1-450, Cecil Co.; removal, replacement existing concrete surfacing 0.836 mi. Elkton-Delaware State Line Rd., Contr. Ce 243-411, Cecil Co.; penetration macadam imprv. 1.553 mi. Washington Rd., Contr. Cl 252-311, Carroll Co.; grading, drainage, concrete surfacing 1.047 mi. east approach Hagerstown Dual Hy., Contr. W 186-625, Washington Co.

★**Ohio**—State Hy. Dpt., Columbus, grading, draining, widening, asphaltic concrete resurfacing 13,978 mi. Sects. A, B, C and Loundonville SH 24, Ashland Co. $150,800; grading, drainage structures, asphaltic concrete resurfacing 4.7 mi. Sects. A and Greenville, SH 208, US36 Darke Co. $137,800; grading, drainage structures, hot mixed hot laid asphaltic concrete widening and paving 1.832 mi. Sects. Q-1 and Worthington SH 4, US. 23, Franklin Co. $129,100; grading, drainage structures, widening, resurfacing existing pavement with tar concrete and widening adjacent concrete beam bridge, over Sloans Run, Sects. F and Toronto SH7, Jefferson Co. $40,500; grading, drainage structures surface treated waterbound macadam paving, continuous steel beam bridge with concrete deck and substructure 0.151 mi. Sect. H, SH 134, Putnam Co. $58,250; grading, drainage structures, tar concrete paving 4.41 mi. Sects. G and H. SH 850, Stark Co. $86,800; grading, drainage structures, surface treated waterbound macadam paving 1.549 mi. Sects. Van Wert and B, SH 435, US224, Van Wert Co. $51,800; grading, drainage structures, bituminous road mix surface course, concrete beam bridge, 2.405 mi. Sects. Q, B and East Liverpool SH12, Columbiana Co. $39,850; grading, drainage structures, monolithic brick surface course and hot mixed, hot laid asphalt concrete surface course, concrete slab bridge with girder railing 1.321 mi. Sect. H, SH 69, US30, Wayne Co. $177,000; grading, draining, asphaltic concrete on waterbound macadam paving 0.105 mi. Sect. H, SH919, Trumbull Co. $6,200; asphaltic concrete resurfacing 0.975 mi. Sect. B, SH 558, Delaware Co. $11,600.

South Carolina—State Hy. Dpt., Columbia, earth type surfacing 3.493 mi. Route 850, Chesterfield Co.; 2.775 mi. Route 30, Laurens and Spartanburg Counties; bituminous surfacing 9.119 mi. Route 182, Oconee Co.; 11.379 mi. Route 290, Spartanburg Co.; grading 0.569 mi. Route 9 (approach work), Spartanburg Co.; concrete base widening and header and sheet asphalt surfacing 8.429 mi. U.S. Rt. 21, Sumter Co. C. R. McMillan, Calhoun State Office Bldg., Columbia, hy. engr.

West Virginia—State Road Comn., Charleston, grading, draining, gravel or slag base, 4.539 mi. Ravenswood-Parkersburg Rd.; grading, draining, concrete paving, concrete sidewalk, 1.268 mi. Ripley Streets, both Jackson Co.; surface treatment 6.1 mi. Dry Branch-Logan Co. line Rd., Lincoln Co.; 5.81 mi. Kermit to Naugatuck Rd., Mingo Co.; 9.48 mi. Wolf Creek-Sinks Grove Rd., Monroe Co.; 3.13 mi. Webster Barbour Co. line Rd., and 2.5 mi. Flemington to Astor Rd., Taylor Co.; 14.53 mi. Camden-on-Gauley-Webster Springs Rd., Webster Co.; 1.55 mi. Elizabeth Streets, Wirt Co.; 2.41 mi. Pettyville-Mineral Wells Rd., Wood Co.

Bids Asked June 18

N. Y., Brooklyn—Dpt. P. Wks., Municipal Bldg., New York, reconstructing roadway between trolley rails on bascule span of Metropolitan Ave. Bridge over English Kills.

Rhode Island—State and Providence Plantations, Dpt. Finance, Div. Purchases, Providence, sheet asphalt (Class J) on concrete with crack control surfacing 0.68 mi. Eddy, Dyer, Dorrance Sts., Providence, Contr. 4108, F. A. P. (SN-FAP)-40-D(1), Providence Co. F. A. Adams, state purch. agt.

Bids Asked June 19

†**Kentucky**—U. S. Eng., U. S. Courthouse, Nashville, Tenn., access road to Wolf Creek Dam Site on Cumberland River, Inv. 612-41-130.

†**Me., York**—U. S. Eng., Park Square Bldg., Boston, Mass., gravel surface roadway with bituminous surface treatment, Mount Agamenticus.

Mich., Grand Haven—Ottawa Co. Rd. Comn., 6 and Adam Sts., 1½ in. premixed tar and gravel surfacing 12.5 mi. road.

Bids Asked June 20

Kentucky—State Hy. Dpt., Frankfort, medium type surfacing 8.935 mi. Princeton-Hopkinsville Rd., FAS 22 A(2) SP17-62, Caldwell Co.; 3.208 mi. Murray-New Concord Rd., FAS 58 A (1), SP18-63, Calloway Co.; 13.868 mi. Shepherdsville-Taylorsville Rd., Bullitt Co.; high type surfacing 11.718 mi. Shelbyville-Frankfort Rd. SN-FA-172 C (2) SP106-106, Shelby Co. high type surfacing, grading, draining, 3.777 mi. London-Corbin Rd. SP-FA321 D(1) SP 63-111, Laurel Co.; resurfacing 10.786 mi. West Liberty-Salyersville Rd., SP-88-78, Morgan Co.; 11.611 mi. LaGrange-New Castle Rd., SP-93-36, SP-93-96, Oldham Co.;